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CRPL-F 206 PART A

FOR OFFICIAL USE

PART A
IONOSPHERIC DATA

ISSUED
OCTOBER 1961

U. S. DEPARTMENT OF COMMERCE
NATIONAL BUREAU OF STANDARDS
CENTRAL RADIO PROPAGATION LABORATORY
BOULDER, COLORADO

CRPL-F 206
PART A

NATIONAL BUREAU OF STANDARDS
CENTRAL RADIO PROPAGATION LABORATORY
BOULDER, COLORADO

Issued
23 Oct. 1961

IONOSPHERIC DATA

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SYMBOLS, TERMINOLOGY, CONVENTIONS

Beginning with data reported for January 1952, and continuing through December 1956, the symbols, terminology, and conventions for the determination of median values used in this report (CRPL-F series) conform as far as practicable to those adopted at the Sixth Meeting of the International Radio Consultative Committee (C.C.I.R.) in Geneva, 1951. Excerpts concerning symbols and terminology from Document No. 626-E of this Meeting are given on pages 2-7 of the report CRPL-F89, "Ionospheric Data," issued January 1952. Reprints of these pages are available upon request.

Beginning with data for January 1957, the symbols used are given in NBS Report 5033, "Summary of Changes in Ionospheric Vertical Soundings, Observing and Scaling Procedures - Effective 1 January 1957," which draws upon the First Report of the Special Committee on World-Wide Ionospheric Soundings (URSI/AGI), Brussels, Sept. 2, 1956. A list of these symbols is available upon request.

In the Second Report of the Special Committee on World-Wide Ionospheric Soundings of the URSI/AGI Committee, May 1957, a new descriptive letter was introduced:

M Measurement questionable because the ordinary and extraordinary components are not distinguishable.

There was an expansion in meaning of the following:

Z (1) (qualifying letter) Measurement deduced from the third magnetoionic component.
(2) (descriptive letter) Third magnetoionic component present.

Beginning with data for January 1945, median values are published wherever possible. Where averages are reported, they are, at any hour, the average for all the days during the month for which numerical data exist.

The following conventions are used in determining the medians for hours when no measured values are given because of equipment limitations and ionospheric irregularities. Symbols used are those given above.

a. For all ionospheric characteristics:

Values missing because of A, C, F, H, L, N or R are omitted from the median count.

b. For critical frequencies and virtual heights:

Values of foF2 (and foE near sunrise and sunset) missing because of E are counted as equal to or less than the lower limit of the recorder. Values of h'F (and h'E near sunrise and sunset) missing for this reason are counted usually as equal to or greater than the median. Other characteristics missing because of E are omitted from the median count.

Values missing because of G are counted:

1. For foF2, as equal to or less than foF1.
2. For h'F2, as equal to or greater than the median.

The symbol W is included in the median count only when it replaces a height characteristic; the descriptive symbol D, only when it replaces a frequency characteristic.

Values missing for any other reason are omitted from the median count.

c. For MUF factor (M-factors):

Values missing because of G or W are counted as equal to or less than the median.

Values missing for any other reason are omitted from the median count.

d. For sporadic E (Es):

Values of fEs missing because of E or G are counted as equal to or less than the median foE, or equal to or less than the lower frequency limit of the recorder.

B for fEs is counted on the low side when there is a numerical value of a higher layer characteristic; otherwise it is omitted from the median count.

S for fEs is counted on the low side at night; during the day it is omitted from the median count (beginning with data for November 1957).

Values of fEs missing for any other reason, and values of h'Es missing for any reason at all are omitted from the median count.

Beginning with CRPL-F188, Part A, issued April 1960, the count is given for foF2 in the tables of medians. It is regretted that space limitations prevent including detailed counts for other characteristics.

To indicate further in a general manner the relative reliability of the data, for the F2 layer, h'F or foEs, if the count is from five to nine, or, for all layers, if more than half of the data used to compute the medians are doubtful (either doubtful or interpolated), the median is enclosed in parentheses. Medians are computed for less than five values for foF2 only.

Ordinarily, a blank space in the fEs or foEs column of a table is the result of the fact that a majority of the readings for the month are below the lower limit of the recorder or less than the corresponding values of foE. Blank spaces at the beginning and end of columns of h'F2 or h'F1, foF1, h'E, and foE are usually the result of diurnal variation in these characteristics. Complete absence of medians of h'F1 and foF1 is usually the result of seasonal effects.

There is no indication on the graphs of the relative reliability of the observed data; it is necessary to consult the tables for such information.

The tables may contain median values of either foEs or fEs. The graph of median Es corresponds to the table. Percentage curves of fEs are estimated from values of foEs when necessary.

The latest available information follows concerning the smoothed observed Zürich numbers beginning with the minimum of April 1954. Final numbers are listed through June 1960.

Smoothed Observed Sunspot Number

WORLD - WIDE SOURCES OF IONOSPHERIC DATA

The ionospheric data given here in tables 1 to 72 and figures 1 to 142 were assembled by the Central Radio Propagation Laboratory for analysis and correlation, incidental to CRPL prediction of radio propagation conditions. The data are median values unless otherwise indicated. The following are the sources of the data in this issue:

Commonwealth of Australia, Ionospheric Prediction Service of the Commonwealth Observatory:

Brisbane, Australia
Townsville, Australia

Australian Department of National Development, Bureau of Mineral Resources, Geology and Geophysics:
Mundaring, Western Australia

University of Graz:
Graz, Austria

Belgian Royal Meteorological Institute:
Dourbes, Belgium
Lwiro (Central African Institute for Scientific Research)

Universidad Mayor de San Andres:
La Paz, Bolivia

British Department of Scientific and Industrial Research, Radio Research Board:
Halley Bay
Ibadan, Nigeria (University College of Ibadan)
Inverness, Scotland
Port Lockroy
Singapore, British Malaya

Defence Research Board, Canada:
Churchill, Canada
Ottawa, Canada
Resolute Bay, Canada
St. John's, Newfoundland
Winnipeg, Canada

Universidad de Concepcion:
Concepcion, Chile

Radio Wave Research Laboratories, National Taiwan University, Taipeh,
Formosa, China:
Formosa, China

Czechoslovak Academy of Sciences:
Pruhonice, Czechoslovakia

Danish National Committee of URSI:
Godhavn, Greenland

General Direction of Posts and Telegraphs, Helsinki, Finland:
Nurmijarvi, Finland

The Finnish Academy of Sciences and Letters:
Sodankyla, Finland

French National Center for Telecommunications Studies:
Tahiti, Society Is.

Institute for Ionospheric Research, Lindau Über Northeim, Hannover,
Germany:
Lindau/Harz, Germany
Tsumeb, South West Africa

The Royal Netherlands Meteorological Institute:
De Bilt, Holland

Indian Council of Scientific and Industrial Research, Radio Research
Committee, New Delhi, India:
Ahmedabad (Physical Research Laboratory)
Bombay (All India Radio)
Calcutta (Institute of Radio Physics and Electronics)
Delhi (All India Radio)
Kodaikanal (India Meteorological Department)
Madras (All India Radio)
Tiruchy (All India Radio)
Trivandrum (All India Radio)

National Institute of Geophysics, City University, Rome, Italy:
Rome, Italy

Ministry of Postal Services, Radio Research Laboratories, Tokyo, Japan:
Akita, Japan
Soya (Japanese Ship)
Tokyo (Kokubunji), Japan
Wakkanai, Japan
Yamagawa, Japan

General Directorate of Telecommunications, Mexico:
El Cerillo, Mexico

Christchurch Geophysical Observatory, New Zealand Department of
Scientific and Industrial Research:

Campbell I.
Christchurch, New Zealand
Rarotonga, Cook Is.

Norwegian Defence Research Establishment, Kjeller per Lillestrom,
Norway:
Tromso, Norway

Manila Observatory:
Baguio, P. I.

Institute of Terrestrial Magnetism, Ionosphere and Radio Propagation,
Moscow, U.S.S.R.:
Moscow

South African Council for Scientific and Industrial Research:
Capetown, Union of South Africa
Johannesburg, Union of South Africa

Research Institute of National Defence, Stockholm, Sweden:
Kiruna, Sweden
Lycksele, Sweden
Upsala, Sweden

Royal Board of Swedish Telegraphs, Radio Department, Stockholm, Sweden:
Lulea, Sweden

Post, Telephone and Telegraph Administration, Berne, Switzerland:
Sottens, Switzerland

National Bureau of Standards (Central Radio Propagation Laboratory):
Byrd Station, Antarctica
Huancayo, Peru (Instituto Geofisico de Huancayo)
Talara, Peru (Instituto Geofisico de Huancayo)

TABULATIONS OF ELECTRON DENSITY DATA

Reduction of hourly ionospheric vertical soundings to electron density profiles has become a part of the systematic ionospheric data program of the Central Radio Propagation Laboratory, National Bureau of Standards. Scalings of ionograms for this purpose are being provided by ionosphere stations operated by several stations associated with CRPL. For the present, the hourly profile data from one CRPL station, Puerto Rico, are appearing in the monthly CRPL-F Reports, Part A. The very considerable task of scaling the ionograms for this purpose is being undertaken by T. R. Gilliland, Engineer in Charge, Puerto Rico Ionosphere Sounding Station; the computations are performed at the NBS Boulder Laboratories by a group headed by J. W. Wright. Basic conversion of virtual to true heights uses the well-known matrix method developed by K. G. Budden of the Cavendish Laboratory, Cambridge University, programmed by Dr. H. H. Howe for a CDC-1604 computer.

The tabulations provide the following basic electron density profile data for each hour of each day of the month:

<u>Quantity</u>	<u>Units</u>	<u>Remarks</u>
Electron Density (N)	$\times 10^3 = \text{electrons/cm}^3$	Body of table; given at each 10 km of height.
NMAX	$\times 10^3 = \text{electrons/cm}^3$	Always the highest value of N at each hour. To maintain this rule, the electron density at the next 10 km increment above HMAX is always given as exactly equal to NMAX (unless HMAX coincides with a 10 km level).
QUALIFICATION	(Alphabetic)	A standard scaling letter qualifying the observation when necessary.
KP		The standard Kp magnetic index, to one digit.
HMIN	Kilometers	The height of zero or very low electron density, obtained by linear extrapolation of the electron density vs. height curve.
SCAT	Kilometers	One half of the half-thickness of the parabola best fitting the upper portion of the F region profile. Approximates the scale height near the level HMAX.
HMAX	Kilometers	The height of maximum electron density, determined by fitting a parabola to the upper portion of the profile.
SHMAX	$\times 10^{10} = \text{electrons/cm}^2 \text{ column.}$	Obtained by integration of the profile between the limits HMIN and HMAX.

Tabulations of the average electron densities each hour, at each 10 km level, for the quiet ionosphere, are also given. These averages include the profiles obtained when the magnetic character figure Kp is 4+ or less. The number of profiles entering the average for each hour is given by CNT. The other parameters of the layer, HMIN, SCAT, HMAX, SHMAX, and the mean value of Kp are given for each hour.

Before the averaging process, the individual profiles are extrapolated above HMAX by a Chapman distribution of 100 km scale height. This assumed model seems to agree well with the few published measurements dealing with the topside profile of the F-region.* Extrapolation is necessary in order to calculate homogeneous averages near HMAX and the average profiles are, in fact, given up to 950 km. Also given are the average estimated integrated electron densities to infinity, SHINF (same units as SHMAX); this is an approximation to the total electron content in a column of the ionosphere.

*See Wright, J. W. "A Model of the F-Region Above HMAX F2" J.Geophys.Res. V.65, pp. 185-191.

ELECTRON DENSITY

RAMEY AFB, PUERTO RICO 60 W 1 JUN 1961

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
O+KP	A3	3	3	3	3	5	R5	5	6	A6	A6	B5
HMIN	261	219	209	231	220	227	100	110	109			107
SCAT	40.8	17.6	43.8	26.2	43.0	48.9	49.4	51.7	41.1			88.6
HMAXT	350	299	308	300	322	359	294	307	293			297
SUMX	280	275	335	202	165	167	187	308	398			425

KM	480	519	559	597	637	677	717	756	796
340	6.72					224			
350	6.67					222			
340	6.72					215			
330	5.81				271	203			
320	5.14				271	188			
310	4.32	562	471	266	170		284		
300	313	747	556	471	254	148	203	283	289
290	107	737	537	462	234	125	203	276	663
280	97.4	701	502	435	203	101	193	265	462
270	39.6	638	451	389	176	78.5	191	247	451
260	554	383	309	139	58.2	175	225	424	277
250	429	308	185	94.7	41.5	164	205	387	266
240	276	221	62.7	54.7	27.2	147	187	333	257
230	118	129	29.9	12.4	12	127	173	272	248
220	24.1	60.1	•4			111	133	225	240
210		12.4				94.9	155	202	233
200						80.4	145	192	228
190						68.0	132	183	224
180						58.0	115	173	222
170						49.9	97.3	161	219
160						43.3	82.1	143	216
150						38.4	70.7	121	202
140						34.9	63.3	105	172
130						32.8	59.4	96.1	140
120						31.6	57.6	91.7	124
110						29.0	12.4	37.2	95.0
100						12.4			

ELECTRON DENSITY

RAMEY AFB, PUERTO RICO 60 W 1 JUN 1961

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
C, KP	5	5	A3	A3	A2	A3	A3	B3	4	A4	A4	A2
HMIN	109	109	109	109				100	259	239	259	
SAT	B2	76.4	64.7	52.0				484.7	485.9	254.8	434.1	
HMAXE	208	300	307	320				294	370	321	360	
SUMAX	540	525	559	661				398	370	197	343	

	560	525	558	664	574	574	197	543
KM								
370					564			
460					556		556	
450					549		549	
440					502		527	
330			529		468	478	489	
320			526		417	478	443	
310	389		428	515	353	455	389	
300	388	373	427	497	505	280	398	326
290	384	371	420	472	504	196	323	243
280	377	367	405	435	495	120	230	142
270	368	359	393	394	475	559	141	601
260	352	348	372	351	444	124	790	124
250	338	331	345	313	406		415	
240	322	315	320	285	361		124	
230	306	301	297	268	312			
220	289	284	278	258	247			
210	274	278	264	251	183			
200	264	268	255	245	134			
190	257	260	248	239	98			
180	253	254	242	231	75			
170	248	249	234	220	60			
160	239	240	228	207	50			
150	227	230	207	191	43			
140	205	216	180	149	39			
130	173	186	161	148	37			
120	154	165	152	139	36			
110	59.7	56.4	41.7	59.7	33			
100					19.7			

ELECTRON DENSITY

RAMEY AFB, PUERTO RICO 60 W 2 JUN 1961

ELECTRON DENSITY

RAMEY AFB, PUERTO RICO 60 W 2 JUN 1961

ELECTRON DENSITY

FLECTRON DENSITY

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
DADP	A2	A2	2	42	2	A2	2	A2	A2	2	2	2
HMIN	109	108	108	108	108	108	231	221	235	248		
SCAT	62.2	38.7		53.9		79.3	40.6	39.5	35.7			
HMAXF	342		294		288		326	324	332	338		
SHMAX	1112		1045		723		446	415	361	319		
KM												
150		985										
140		985									651	621
130		974						812	737	659	613	
120		954						808	735	635	581	
310		919						780	716	599	524	
300		875		1680				724	669	542	447	
290		811		1675		941		648	610	469	357	
280		734		1623		935		550	525	378	247	
270		649		1514		913		432	416	261	136	
260		565		1344		875		271	283	143	642	
250		486		1057		819		142	167	72.9	18.4	
240		413		727		747		49.8	80.5	29.4		
230		352		462		652			38.7			
220		314		305		526						
210		289		254		373						
200		277		231		246						
190		263		217		182						
180		256		203		165						
170		251		199		118						
160		242		180		90.5						
150		218		151		73.7						
140		188		134		65.5						
130		165		126		60.9						
120		154		121		58.1						
110		85.0		59.9		39.7						

ELECTRON DENSITY

RAMEY AFR. PUERTO RICO										60 W	6 JUN 1961	
TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
O,KP	2	2	3	3	C3	C1	81	C1	C2	C2	2	5
HMTN	249	261	204	203							109	107
SCAT	36.1	43.6	33.9	32.7							60.0	46.3
HMAXF	337	368	290	289							330	324
SHMAX	326	578	380	289							1017	1016
KM												
370		898										
360		890										
350		858										
340	639	798									932	
330	633	727									932	1080
320	605	646									925	1078
310	550	545									906	1057
300	481	429	723								873	1010
290	390	315	710	639							827	938
280	276	197	660	628							770	847
270	148	64+1	594	584							705	749
260	60+2	521	517								630	645
250	12+4	428	419								549	543
240		301	286								465	450
230		16A	151								387	373
220		77+6	61+4								331	320
210		32+1	12+4								296	287
200											274	258
190											259	258
180											249	254
170											241	250
160											233	237
150											219	200
140											200	172
130											171	156
120											141	146
110											41+7	93+2

ELECTRON DENSITY

ELECTRON DENSITY

RAMEY AFB, PUERTO RICO

60 W 7 JUN 1961

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
0-KP	3	F3	A4	A5	5	A4						
HMIN	228	218	218	240						110		
SCAT	37.9	42.8	28.4		38.2					60.2		
HMAXF	313	310	282			322				324		
SHMAX	219	222	146			132				894		
KM												
320										258		812
320	450	392			258					811		370
310	449	392			251					801		360
300	434	386			236					779		350
290	396	370	390		212					744		340
280	343	343	390		179					703		330
270	280	305	374		132					651		320
260	203	256	334		77.1					593		310
250	173	184	267		39.5					523		300
240	59.0	104	146		3.9					449		290
230	17.2	49.3	66.0							384		280
220		16.8	20.5							336		270
210										305		260
200										286		250
190										272		240
180										258		230
170										241		220
160										219		210
150										196		200
140										162		
130										144		
120										137		
110										12.4		

ELECTRON DENSITY

RAMEY AFB, PUERTO RICO

60 W 7 JUN 1961

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
0-KP	A4	A3	A3	A3	4	A4						
HMIN	108							100	199	229	233	222
SCAT	50.1							44.2	42.9	44.8	41.3	34.0
HMAXF	316							287	318	345	334	316
SHMAX	1160							739	506	450	394	287
KM												
370								250				701
360	779							140				698
350	774							140				678
340	751							1360				642
330	708	616						1355				659
320	646	614						310				592
310	569	827	599	669				1324				620
300	465	823	566	662	430			290				565
290	910	780	651	523	638	429		280				533
280	144	713	643	465	593	414		270				486
270	53.6	616	610	394	538	378		260				332
260	487	552	310	459	325			250				234
250	300	474	200	349	251			240				191
240	134	373	107	225	149			230				170
230	43.9	258	50.2	134	51.6			220				144
220		159	16.8	72.7				210				115
210		90.5	35.6					200				80.5
200		45.0						190				670

ELECTRON DENSITY

RAMEY AFB, PUERTO RICO

60 W 8 JUN 1961

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
0-KP	A3	1	A1									
HMIN	271	233	190	228	211	232					1	1
SCAT	44.5	34.0	35.8	44.3	44.1	33.3						
HMAXF	367	315	298	135	319	303						
SHMAX	456	385	340	385	398	190						
KM												
370								250				701
360	779							140				698
350	774							140				678
340	751							1360				642
330	708	616						1355				659
320	646	614						310				592
310	569	827	599	669				1324				620
300	465	823	566	662	430			290				565
290	910	780	651	523	638	429		280				486
280	144	713	643	465	593	414		270				332
270	53.6	616	610	394	538	378		260				234
260	487	552	310	459	325			250				191
250	300	474	200	349	251			240				170
240	134	373	107	225	149			230				144
230	43.9	258	50.2	134	51.6			220				115
220		159	16.8	72.7				210				80.5
210		90.5	35.6					200				670
200		45.0						190				565

ELECTRON DENSITY

RAMEY AFB, PUERTO RICO

60 W 8 JUN 1961

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
0-KP	A3	1	A1	1								
HMIN	108							100	199	229	233	222
SCAT	50.1							44.2	42.9	44.8	41.3	34.0
HMAXF	316							287	318	345	334	316
SHMAX	1160							739	506	450	394	287
KM												
370								250				701
360	779							140				698
350	774							140				678
340	751							1360				642
330	708	616						1355				659
320	646	614						310				592
310	569	827	599	669				1324				620
300	465	823	566	662	430			290				565
290	910	780	651	523	638	429		280				486
280	144	713	643	465	593	414		270				332
270	53.6	616	610	394	538	378		260				234
260	487	552	310	459	325			250				191
250	300	474	200	349	251			240				170
240	134	373	107	225	149			230				144
230	43.9	258	50.2	134	51.6			220				115
220		159	16.8	72.7				210				80.5
210		90.5	35.6					200				670
200		45.0						190				565

ELECTRON DENSITY

RAMSEY AER. PUERTO RICO		60 W		9 JUN 1961								
TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
QKTP	1	1	2	?	2	2	A2	A2	A1	A1	A1	A2
HMIN	243	219	209	201	231	230			107			108
SCAT	40.1	28.9	34.6	45.0	60.2	37.1			48.8			49.2
HMAXE	351	294	280	290	341	339			297			331
SHMAX	30.9	22.9	22.0	15.4	16.7	10.8			647			1057
KM												
360	541											
350	541											
340	532											1126
330	505											1125
320	461											1111
310	404											1073
300	378	594										
290	236	591	517	271	183	202			654			1008
280	152	561	517	268	162	183			651			927
270	90.6	495	506	259	135	156			634			829
260	51.0	393	471	242	102	123			600			720
250	25.0	248	415	218	69.0	79.5			561			609
240		126	316	178	34.2	38.9			516			504
230		67.8	152	130	3.0	3.0			467			419
220		12.4	62.2	70.1					411			359
210		12.4	43.4	38.7					357			322
200									315			302
190									285			287
180									265			277
170									250			268
160									233			255
150									203			237
140									163			203
130									136			167
120									124			143
110									117			146
									110			81.6

FLICKER DENSITY

RAMSEY AFR, PUERTO PICO		60 W										9 JUN 1961	
TIME		1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
OAKP	A2	2	A2	2	2	A2	A2	R2	A1	A1	1	1	1
HMIN		108		109	109	107		100	199	215	231	271	
SCAT	40.8		47.0	41.8	39.2		38.1	41.4	42.3	44.3	47.4		
HMAXF		322		327	311	289		281	322	332	340	370	
SHMAX	1267			1308	1255	1155		652	476	380	325	324	
KM													
270													517
360													512
360													512
340													495
340													464
330		1561		1554					714	621	532	426	
320		1560		1545	1712				713	606	511	371	
310		1528		1503	1712				697	575	476	302	
300		1448		1426	1684				661	525	424	230	
290		1319		1314	1608	1877			1110	602	464	352	144
280		1165		1156	1490	1850			1110	539	388	275	54.7
270		976		977	1306	1761			1087	472	305	188	
260		796		791	1074	1616			1020	393	224	112	
250		630		628	832	1399			727	314	144	67.3	
240		490		489	623	1082			807	233	185	93.5	
230		397		392	466	707			638	162	46.7		
220		341		333	366	451			449	102	20.7		
210		310		304	297	291			285	48.0			
200		295		284	266	236			171	12.4			
190		286		271	249	215			168				
180		276		265	240	202			72.7				
170		264		258	230	190			55.6				
160		251		241	212	175			46.4				
150		226		221	188	152			40.1				
140		194		193	163	124			36.2				
130		171		169	143	100			34.1				
120		145		154	132	102			31.0				
110		81.4		59.7	38.1	81.5			30.3				
100									19.7				

ELECTRON DENSITY

RAMSEY AFB, PUERTO RICO		60 W		10 JUN 1961									
TIME		0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
0 KMP	1	1	2	2	2	1	81	1	2	52	2	A0	
WMIN	240	234	215	203	222	239	170	108	109	106	138		
SCAT	43.9	77.5	44.4	74.1	47.6	40.8	39.3	46.8	54.7	72.5	57.0		
HMAXE	336	310	309	292	326	336	268	273	294	331	344		
SHMAX	314	283	302	165	158	113	176	355	595	964	1129		
KM													
350													96.7
340	556						195			772	766		
330	554					242	194			772	953		
320	539					241	188			767	925		
310	508	580	510			235	175			755	879		
300	463	570	504	326	223	158			616	736	825		
290	392	538	485	325	207	134			615	707	760		
280	303	488	454	314	185	107			407	606	676	692	
270	196	410	410	288	156	77.3	225	406	587	635	623		
260	98.2	310	357	251	125	49.5	222	399	556	590	556		
250	44.3	188	289	204	92.1	29.6	212	383	518	540	495		
240	3.1	54.0	186	149	57.9	7.2	195	356	467	489	438		
230		84.9	94.8	30.5			172	322	408	437	389		
220		30.8	54.1			146	283	345	387	349			
210			26.3			123	246	294	341	321			
200						102	215	259	305	300			
190						85.9	190	236	270	285			
180						73.1	167	216	260	272			
170						62.5	146	196	245	258			
160						54.2	127	174	229	239			
150						48.9	108	153	210	215			
140						44.8	94.0	136	187	190			
130						42.6	83.9	123	165	168			
120						41.3	73.8	114	143	154			
110						37.5	43.7	39.4	107	81.4			
100						19.7							

ELECTRON DENSITY

ELECTRON DENSITY

RAMFAY AFB, PUERTO RICO

60 W 11 JUN 1961

TIMF	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
Q,KP	F1	A1	A0	212	249	0	0	0	A0	A0	1	1
HMIN	250	199	212	249	249	211			110	109	108	
SCAT	35.6	35.4	31.1	35.4	38.8	41.0			35.9	53.9	52.4	63.3
HMAXF	345	282	282	338	326	298			253	304	295	336
SHMAX	436	400	244	259	215	191			357	794	908	1245

Y.M	831	827	494	497	422	461	420	414	405	358	377	356	815	985	992	1080
340	795	727	727	727	727	727	727	727	727	727	727	727	727	727	727	1076
320	646	544	544	544	544	544	544	544	544	544	544	544	544	544	544	1063
310	544	544	544	544	544	544	544	544	544	544	544	544	544	544	544	1035
300	401	882	585	296	332	353	276	339	315	276	339	315	814	985	992	1000
290	250	881	585	218	276	339	276	339	315	276	339	315	802	982	992	1000
280	137	856	565	175	202	228	155	84.7	510	469	621	733	927	873	873	800
270	57.8	795	515	61.9	94.2	278	567	680	869	566	618	801	64.7	725	725	64.7
260	530	695	449	124.4	227.1	228	540	547	715	540	547	715	540	547	563	563
250	285	158	158	158	158	158	158	158	158	158	158	158	510	621	621	495
240	131	52.6	40.1	40.1	40.1	40.1	40.1	40.1	40.1	40.1	40.1	40.1	443	527	527	421
230	60.4	124.4	124.4	124.4	124.4	124.4	124.4	124.4	124.4	124.4	124.4	124.4	336	433	433	370
220	190	190	190	190	190	190	190	190	190	190	190	190	247	361	361	312
210	180	180	180	180	180	180	180	180	180	180	180	180	199	275	315	300
200	170	170	170	170	170	170	170	170	170	170	170	170	144	225	258	270
190	160	160	160	160	160	160	160	160	160	160	160	160	175	232	232	260
180	150	150	150	150	150	150	150	150	150	150	150	150	150	168	205	242
170	140	140	140	140	140	140	140	140	140	140	140	140	96.6	143	176	213
160	130	130	130	130	130	130	130	130	130	130	130	130	88.1	125	151	177
150	120	120	120	120	120	120	120	120	120	120	120	120	83.5	115	136	150
140	110	110	110	110	110	110	110	110	110	110	110	110	12.4	39.4	130	120

FLEETRON DENSITY

RAMEY AFB, PUERTO RICO

60 W 11 JUN 1961

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
OYRP	1	A1	1	A1	1	0	A0	R0	1	1	1	4
HMIN	107	109	107	108	108	108	109	109	109	249	262	236
SCAT	53.6	47.4	54.8	56.2	39.0	38.1	56.9	46.0	39.4	46.2		
HMAXF	338	329	340	335	309	268	333	358	355	337		
SHMAX	1257	1230	1242	1531	1247	773	703	477	408	507		
KM										747	747	
360										742	744	
350												
340	1184		1424		1712			850	720	721	854	
330	1178	1287	1413		1708			849	678	671	849	
320	1152	1276	1378		1680			839	622	602	825	
310	1106	1237	1320		1625	1792		815	546	506	780	
300	1037	1166	1240		1542	1771		773	456	391	718	
290	952	1074	1132		1434	1691		726	348	270	632	
280	852	970	1004		1272	1552		673	240	138	558	
270	752	829	859		1055	1357		1491	665	144	476	330
260	659	711	723		857	1097		1473	533	646		171
250	574	604	606		676	861		1465	452	124		74.5
240	495	507	508		527	654		1291	369			26.3
230	430	426	429		406	494		1100	282			
220	379	363	377		332	373		818	183			
210	342	330	337		286	300		509	81.7			
200	320	303	306		261	259		230	12.4			
190	304	292	288		246	233		100				
180	292	283	278		233	214		55.4				
170	290	272	271		219	198		44.8				
160	263	261	262		210	182		39.7				
150	236	250	247		193	165		36.8				
140	201	238	200		166	143		25.2				
130	183	201	174		146	123		34.0				
120	175	176	166		133	111		32.0				
110	137	59.7	107		59.9	58.3		28.9				
100								12.4				

ELECTRON DENSITY

RAMEY AFB, PUERTO RICO

68 W

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
CKPD	4	4	3	3	F3	2	A2	2	2	A2	A2	A2
HMIN	224	210	239	292	249	210	100	109	108	109	108	108
SCAT	374	374	379	40.5	35.9	41.1	33.9	36.8	46.0	44.1	44.1	44.1
HMAXF	306	285	327	369	342	285	238	262	268	268	268	268
SHMAX	398	285	205	166	199	146	136	304	454	454	454	454

ELECTRON DENSITY

RAMEY AFB, PUERTO RICO

60 W 12 JUN 1961

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
O,KD	A2	A2	A1	A1	A1	A0	B0	A0	A0	O	1	
HMIN						112	100		229	239	262	
SCAT						44.6	41.7		74.4	39.2	50.3	
HMAXF						296	302		337	333	372	
SHMAX						97.6	80.8		56.3	40.8	46.0	

KM	770	600	505	406	400
180					675
170					675
160					665
150					643
140					898
130					730
120					602
110					557
100					893
90					729
80					557
70					849
60					710
50					428
40					825
30					654
20					424
190	1281				
180	1280				
170	1280				
160	1256				
150	1254				
140	1195				
130	1107				
120	1097				
110	1080				
100	971				
90	962				
80	814				
70	816				
60	600				
50	446				
40	307				
30	248				
20	367				
190	152				
180	291				
170	98.4				
160	226				
150	68.0				
140	193				
130	54.1				
120	17.0				
110	47.4				
100	15.2				
90	4.5				
80	15.2				
70	13.6				
60	40.5				
50	38.9				
40	17.8				
30	35.9				
20	32.1				
10	1.7				

ELECTRON DENSITY

RAMEY AFR. PUERTO RICO

60 W 15 JUN 1961

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
O+KP	A2	A3	A3	A3	A3							
HMIN	299	262	230	219	249				109			
SCAT	33.8	39.7	30.8	37.1		38.2			44.8			
HMAXF	362	344	289	315		330			265			
SHMAX	275	384	309	285		263			443			
KM												
370	645											
360	644											
350	625	727										
340	676	725										
330	604	705										
320	383	658	512	498								
310	198	600	510	467								
300	33.0	525	490	427								
290	416	775	452	372								
280	248	760	400	295								
270	66.7	703	342	187	522							
260	606	274	85.9	520								
250	446	192	22.0	507								
240	254	116		478								
230	19.7	55.1		442								
220		12.4		393								
210			342									
200			299									
190			264									
180			237									
170			213									
160			188									
150			160									
140			139									
130			119									
120			108									
110			32.8									

ELECTRON DENSITY

RAMEY AFR. PUERTO RICO

60 W 15 JUN 1961

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
O+KP	A3	A3	B3	A3	A3	A2	A2	B2	1	1	1	2
HMIN	108	108	109	107	108	109	108	107	108	109	109	108
SCAT	61.5	45.2	46.6	45.8	48.0		40.3	53.0	38.0	47.1	40.9	
HMAXF	371	331	335	335	347		290	346	339	331	328	
SHMAX	1638	1475	1564	1387	1543		980	928	638	673	601	
KM												
370		1031		380	1360							
360	R98		1031	370	1359							
350	R98		1020	360	1348							
340	R94		856	350	1318							
330	86.2		853	998	340	1271	1635	1712	1561	1866	1184	
320	775	858	782	846	911	330	1202	1634	1707	1556	1816	1181
310	692	858	782	830	856	320	1122	1609	1688	1518	1726	1131
300	584	820	777	805	803	310	1029	1544	1589	1443	1592	1057
290	406	753	762	767	745	300	930	1435	1466	1326	1434	957
280	227	645	695	294	619	739	729	685	290	824	1334	1228
270	94.5	490	971	274	617	702	684	622	280	722	1145	1181
260	29.4	302	906	269	607	665	637	563	270	629	971	1005
250		141	776	220	587	624	587	509	260	551	811	834
240	52.2	512	186	19.7	554	576	540	460	250	488	666	691
230			107	515	522	496	419	240	437	539	577	473
220				470	458	454	385	230	399	447	483	399
210			60.9	417	402	415	358	220	371	390	409	347
200			12.4	359	354	378	336	210	349	352	362	314
190				303	317	343	322	200	312	329	331	292
180				259	286	311	311	190	317	314	311	276
170				200	242	259	282	170	294	295	288	246
160				171	224	236	260	160	281	285	269	229
150				138	196	216	235	150	243	267	241	202
140				116	153	190	207	140	241	240	209	170
130				109	137	164	181	130	214	206	183	149
120				37.2	131	115	73.8	120	186	186	173	139
110								110	81.6	106	41.7	75.3

ELECTRON DENSITY

RAMEY AFR. PUERTO RICO

60 W 16 JUN 1961

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
O+KP	A3	A3	B3	A3	A3	A2	A2	B2	1	1	1	2
HMIN	108	108	109	107	108	109	108	107	108	109	109	108
SCAT	61.5	45.2	46.6	45.8	48.0		40.3	53.0	38.0	47.1	40.9	
HMAXF	371	331	335	335	347		290	346	339	331	328	
SHMAX	1638	1475	1564	1387	1543		980	928	638	673	601	
KM												
370		1031		380	1360							
360	R98		1031	370	1359							
350	R98		1020	360	1348							
340	R94		856	350	1318							
330	86.2		853	998	340	1271	1635	1712	1561	1866	1184	
320	775	858	782	846	911	330	1202	1634	1707	1556	1816	1181
310	692	858	782	830	856	320	1122	1609	1688	1518	1726	1131
300	584	820	777	805	803	310	1029	1544	1589	1443	1592	1057
290	406	753	762	767	745	300	930	1435	1466	1326	1434	957
280	227	645	695	294	619	739	729	685	290	824	1334	1228
270	94.5	490	971	274	617	702	684	622	280	722	1145	1181
260	29.4	302	906	269	607	665	637	563	270	629	971	1005
250		141	776	220	587	624	587	509	260	551	811	834
240	52.2	512	186	19.7	554	576	540	460	250	488	666	691
230			107	515	522	496	419	240	437	539	577	473
220				470	458	454	385	230	399	447	483	399
210			60.9	417	402	415	358	220	371	390	409	347
200			12.4	359	354	378	336	210	349	352	362	314
190				303	317	343	322	200	312	329	331	292
180				259	286	311	311	190	317	314	311	276
170				200	242	259	282	170	294	295	288	246
160				171	224	236	260	160	281	285	269	229
150				138	196	216	235	150	243	267	241	202
140				116	153	190	207	140	241	240	209	170
130				109	137	164	181	130	214	206	183	149
120				37.2	131	115	73.8	120	186	186	173	139
110								110	81.6	106	41.7	75.3

ELECTRON DENSITY

RAMEY AFR. PUERTO RICO

60 W 17 JUN 1961

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
O+KP	A3	A3	B3	A3	A3	A2	A2	B2	1	1	1	2
HMIN	108	108	109	107	108	109	108	107	108	109	109	108
SCAT	61.5	45.2	46.6	45.8	48.0		40.3	53.0	38.0	47.1	40.9	
HMAXF	371	331	335	335	347		290	346	339	331	328	
SHMAX	1638	1475	1564	1387	1543		980	928	638	673	601	
KM												
370		1031		380	1360							
360	R98		1031	370	1359							
350	R98		1020	360	1348							
340	R94		856	350	1318							
330	86.2		853	998	340	1271	1635	1712	1561	1866	1184	
320	775	858	782	846	911	330	1202	1634	1707	1556	1816	1181
310	692	858	782	830	856	320	1122	1609	1688	1518	1726	1131
300	584											

ELECTRON DENSITY

RAMEY AFR. PUERTO RICO

60 W 17 JUN 1961

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
Q,KP	A2	A2	A0	A0	0	1	B1	A1	A3	3	3	1
HMIN	239	249	232	209	230		108	107	108			
SCAT	45.6	39.1	39.5	38.6	44.3		43.3	61.9	101			
HMAXF	352	339	317	304	330		263	320	386			
SHMAX	584	417	372	305	335		525	775	1289			
KM												
390												768
380												767
370												763
360												755
350												728
340												728
330												616
320												616
310												616
300												616
290												616
280												616
270												616
260												616
250												616
240												616
230												616
220												616
210												616
200												616
190												616
180												616
170												616
160												616
150												616
140												616
130												616
120												616
110												616

ELECTRON DENSITY

RAMEY AFR. PUERTO RICO

60 W 17 JUN 1961

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
Q,KP	1	1	1	1	1	1	1	1	1	1	1	2
HMIN	108	109	109	108	107	107	108	107	107	106	105	105
SCAT	52.0	55.9	59.3	47.9								
HMAXF	366	364	351	324								
SHMAX	1347	1422	1525	1366								
KM												
390												976
380												941
370												938
360												915
350												914
340												920
330												907
320												1031
310												869
300												855
290												974
280												1025
270												779
260												907
250												1000
240												716
230												676
220												822
210												822
200												822
190												822
180												822
170												822
160												822
150												822
140												822
130												822
120												822
110												822

ELECTRON DENSITY

RAMEY AFR. PUERTO RICO

60 W 18 JUN 1961

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
Q,KP	2	2	2	2	2	3	R3	3	3	A3	A3	A3
HMIN	212	219	205	255	241	229	109	113	109			
SCAT	36.0	30.7	61.9	56.3	43.2	49.2	55.3	42.8	57.7			
HMAXF	323	298	330	366	340	329	299	289	309			
SHMAX	572	374	428	330	257	246	439	540	709			
KM												
370												467
360												466
350												458
340												442
330	1046	517	417	424	383		461	641				
320	1044	514	389	406	380		447	635	605			
310	1011	503	346	377	368		427	610	573			
300	933	658	487	291	337	348	461	641				
290	833	844	462	224	284	322	457	642	628			
280	698	782	433	135	223	284	447	635	605			
270	548	683	397	69.5	157	237	427	610	573			
260	381	542	354	28.1	88.7	181	403	570	531			
250	227	374	305	41.0	112		369	505	485			
240	130	183	248		51.2		329	420	435			
230	71.1	72.7	183		12.4		285	347	388			
220	34.0	12.4	102		32.8		244	291	346			
210							213	258	313			
200							187	239	289			
190							163	224	272			
180							139	208	257			
170							114	192	240			
160							91.6	170	218			
150							81.0	144	186			
140							75.0	121	151			
130							71.2	107	131			
120							69.1	99.4	110			
110							25.1	57.6				

ELECTRON DENSITY

RAMEY AFR. PUERTO RICO

60 W 18 JUN 1961

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
Q,KP	3	3	A3	A3	A3	4	4	4	R4	2	2	3
HMIN	109	108				109	108			239	269	260
SCAT	63.7	48.3				55.6	63.5			57.3	50.1	42.0
HMAXF	351	335				343	335			393	393	365
SHMAX	1200	1216				1219	1245			751	623	510
KM												
390												886
380												885
370												875
360												850
350												851
340												844
330												810
320												800
310												822
300												822
290												822
280												822
270												822
260												822
250												822
240												822
230												822
220												822
210												822
200												822
190												822
180												822
170												822
160												822
150												822
140												822
130												822
120												822
110												822

33.1 33.3

ELECTRON DENSITY

RAMEY AFB, PUERTO RICO

60 W 21 JUN 1961

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
O+K _D	5	A5	4	4	4	6	86	6	6	6	6	84
HMIN	251	231	200	199	229	305	110	109	108	106	105	108
SCAT	38.2	39.9	29.0	42.7	48.2	48.4	76.2	79.7	40.6	38.0	63.7	346
HMAXF	150	317	252	305	312	415	305	351	289	233	233	346
SHMAX	792	857	476	211	95	87	366	628	684	341	928	
KM												
420							124					
410							124					
400							121					
390							116					
380							107					
370							97.5					
360							85.4					
350	1424						71.8					
340	1401						57.8					
330	1330						42.9					
320	1208	1635					163	28.9				
310	1058	1623					163	16.2				
300	883	1562					331	160				
290	684	1448					322	154				
280	446	1289					301	145				
270	191	1065					275	130				
260	57.6	779	1450	243	108		273	290	701			
250		399	1448	207	77.8		261	278	629			
240		102	1386	166	44.4		248	267	536	450	375	
230			1236	124	12.4		232	258	437	450	35	
220				855	79.9		214	249	365	437	347	
210				236	41.5		196	241	314	409	337	
200				124	12.4		179	232	284	367	324	
190							161	224	266	322	314	
180							142	214	254	289	304	
170							123	202	242	261	292	
160							105	184	226	229	274	
150							91.0	164	201	187	251	
140							81.7	144	173	164	220	
130							77.3	127	149	152	181	
120							74.0	117	140	146	165	
110							12.4	39.4	78.3	118	131	131

ELECTRON DENSITY

RAMEY AFB, PUERTO RICO

21 JUN 1961

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
OAKP	4	4	5	5	A5	A7	A7	B7	7	7	A7	A6
HMIN	107	107	105	108		108	109	249	290	271	274	
SCAT	53.9	64.4	75.3	71.4		52.1	58.8	47.3	46.6	49.5	46.6	
HMAXF	311	312	363	375		355	375	371	394	386	385	
SHMAX	1085	1075	1437	1424		1387	1448	1232	1427	1542	1371	
KM												
400												2256
390												2252
380					1095							2330
370					1080	1094						2145
360					1079	1082						
350					1072	1061						
340					1054	1021						
330					1027	984						
320	1131	980	991	931		1381	1220	1299	838	1283	1145	
310	1131	980	943	872		1272	1108	1110	484	887	803	
300	1119	972	890	805		1144	988	890	199	513	442	
290	1087	952	831	727		1004	850	653	12.4	253	179	
280	1036	921	765	642		838	709	440				
270	947	676	691	558		673	564	255				
260	874	822	616	481		535	477	95.8				
250	762	756	545	471		421	318	12.4				
240	679	682	480	370		337	233					
230	514	592	425	351		274	162					
220	413	497	385	335		232	116					
210	353	417	357	322		201	89.3					
200	327	369	339	311		176	72.8					
190	312	339	325	296		154	61.2					
180	298	318	316	279		134	53.0					
170	284	301	302	262		115	47.2					
160	269	284	277	243		98.8	42.7					
150	250	268	233	212		86.5	39.4					
140	225	264	194	172		77.1	37.1					
130	195	208	178	158		70.2	35.5					
120	174	183	172	152		66.6	34.5					
110	66.1	89.8	66.0	55.6		38.1	32.1					
100								19.2				

ELECTRON DENSITY

PAMEY AFB, PUERTO RICO

60 W 22 JUN 1961

ELECTRON DENSITY

RAMEY AFB, PUERTO RICO

22 JUN 1961

ELECTRON DENSITY

RAMEY AFB, PUERTO RICO

60 W 25 JUN 1961

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
O*KP	42	2	1	1	1	3	A3	A3	A2	A2	A2	A2
HMIN	230	219	247	228	238	218	112	108				
SCAT	45.6	72.0	48.2	47.0	40.7	49.3	67.9	48.2				
HMAXF	324	371	343	332	333	324	309	303				
SHMAX	623	756	410	245	303	310	655	757				
KM												
380	815											
370	815											
360	811											
350	799	675										
340	778	674	562	541								
330	1031	750	663	561	540	459						
320	1030	717	636	552	527	458						
300	963	615	537	498	450	433	636	853				
290	891	548	460	446	388	405	627	840				
280	800	475	345	376	312	371	610	807				
270	678	381	206	292	216	329	585	756				
260	517	261	89.3	148	117	280	557	689				
250	337	154	24.0	101	55.3	225	519	611				
240	147	85.1	52.3	16.8	14.8		472	522				
230	12.4	41.8	17.2		63.6		417	433				
220	12.4			17.8			355	360				
210					300	308						
200					252	271						
190					211	244						
180					178	219						
170					148	193						
160					123	165						
150					99.7	140						
140					81.7	123						
130					71.7	113						
120					56.8	109						
110					35.4							

ELECTRON DENSITY

RAMEY AFB, PUERTO RICO

60 W 25 JUN 1961

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
O*KP	2	B2	A2	A2	H2	A3	3	A3	A1	1	A1	1
HMIN	106	106	107	106	108	105	108		249	258	244	229
SCAT	47.2	42.5	52.5	59.9	50.1	51.2	42.4		55.6	39.2	40.4	36.3
HMAXF	349	340	342	377	335	310	314		384	366	339	326
SHMAX	1494	1537	1664	1941	1793	1536	1162		1037	858	848	787
KM												
390									1347			
380									1345			
370									1326	1512		
360									1285	1503		
350									1218	1449		
340									1136	1340	1561	
330									1025	1201	1541	1561
320									896	1002	1472	1551
310									762	794	1360	1487
300									609	574	1188	1363
290									430	314	975	1181
280									270	161	689	945
270									134	65.2	393	635
260									62.3	19.3	151	345
250									17.4	41.8		61.1
240												12.4
230												
220												
210												
200												
190												
180												
170												
160												
150												
140												
130												
120												
110												

ELECTRON DENSITY

RAMEY AFB, PUERTO RICO

60 W 26 JUN 1961

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
O*KP	1	1	0	0	0	A0	A0	A3	3	A2		
HMIN	209	199	199	249	291	250	112	107				
SCAT	37.0	38.7	45.2	50.1	44.1	39.0	82.7	76.8				
HMAXF	295	284	322	350	333	334	320	355				
SHMAX	686	470	354	255	222	176	1047	1161				
KM												
360									838			
350									837			
340									810			
330									816			
320									932	795		
310									929	762		
300									918	728		
290									901	691		
280									878	651		
270									852	609		
260									815	564		
250									761	521		
240									694	477		
230									530	399		
220									460	332		
210									406	302		
200									377	345		
190									307	313		
180									267	291		
170									241	275		
160									217	261		
150									199	246		
140									166	230		
130									137	196		
120									122	154		
110									115	145		

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
O*KP	42	A2	A2	2	2	1	S1	A1	0	A0	A0	C2
HMIN	107	113	111	108	107	109			240	219	270	
SCAT	68.5	56.4	43.5	48.6	59.4	48.7			1080	971	759	
HMAXF	351	354	324	333	354	338			47.8	47.5	38.7	
SHMAX	1447	1445	1280	1443	1405	1410			348	342	363	
KM												
370										782		
360									1179	1341		
350									1179	1339		
340									350	1358		
330									346	1172		
320									330	1152	1279	
310									320	1120	1214	
300									310	1072	1134	
290									300	1018	1035	
280									290	950	921	
270									280	746	724	
260									270	708	692	
250									260	673	645	
240									250	633	609	
230									230	588	532	
220									220	549	493	
210									210	541	307	
200									200	509	280	
190									190	496	280	
180									180	466	291	
170									170	426	274	
160									160	399	246	
150									150	375	223	
140									140	337	196	
130									130	302	178	
120									120	274	148	
110									110	232	207	

56.1

56.1

56.1

ELECTRON DENSITY

RAMFY AER, PUERTO RICO

60 W

27 JUN 1961

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
OAKP	C2	C2	C3	C3	C3	C3	C3	A3	A3	A1		
HMIN								109	108			
SCAT								56.8	52.9			
HMAXF								316	338			
SHMAX								809	1041			
KM										941		
240										340	1121	1080
230										330	1116	1080
220										320	1095	1070
210										310	1060	1046
200										300	1004	1007
190										290	941	952
180										280	845	888
170										270	770	812
160										260	688	728
150										250	596	640
140										240	498	554
130										230	427	475
120										220	364	409
110										210	322	357
										200	297	324
										190	284	303
										180	277	288
										170	270	272
										160	257	251
										150	235	223
										140	208	193
										130	182	171
										120	166	161
										110	54.9	81.6
										33.0	53.9	83.2

ELECTRON DENSITY

RAMFY AER, PUERTO RICO

60 W

27 JUN 1961

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
OAKP	1	1	1	0	40	A0	A0	A0	110	100	221	226
HMIN	108	108	107						45.9	60.3	39.4	41.7
SCAT	60.0	61.5	52.3						294	315	326	317
HMAXF	338	332	325						771	808	520	518
SHMAX	1237	1194	1147						1008	842	46.9	44.0
KM												
240									1006	907	896	738
230									993	902	904	712
220									96.6	871	875	64.4
210									1027	923	806	81.2
200									1024	870	729	58.3
190									1001	842	627	63.4
180									95.4	718	510	29.7
170									881	627	359	391
160									794	528	204	230
150									689	418	102	93.1
140									12.4	30.1		
130												
120												
110												

ELECTRON DENSITY

RAMFY AER, PUERTO RICO

60 W

28 JUN 1961

TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
OAKP	1	A1	1	1	1	2	R2	2	A2	A2	A2	B1
HMIN	242	213	218	274	242	259	109	106				
SCAT	39.3	44.0	47.3	39.2	40.3	40.4	42.6	37.8				
HMAXF	338	311	327	371	336	331	261	260				
SHMAX	393	401	296	250	245	214	414	515				
KM												
240									370			
230									436			
220									436			
210									428			
200									403			
190									403			
180									370			
170									370			
160									370			
150									370			
140									370			
130									370			
120									370			
110									370			

ELECTRON DENSITY

RAMFY AER, PUERTO RICO

60 W

28 JUN 1961

TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
OAKP	1	1	1	1	A1	A1	A1	A1	A1	A3	A3	3
HMIN	108	108	107	109						229	229	264
SCAT	52.2	50.0	48.8							49.6	46.6	42.5
HMAXF	327	327	324	321						340	329	36.1
SHMAX	1193	1237	1140							538	450	359
KM												
240									370			
230									436			
220									436			
210									428			
200									403			
190									370			
180									370			
170									370			
160									370			
150									370			
140									370			
130									370			
120									370			
110									370			

ELECTRON DENSITY

RAMSEY AER. PUERTO RICO		60 W											29 JUN 1961		
TIME		0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100		
0KPR	A6	A6	A5	5	5	F3	R3	A3	A3	3	3	2			
HMIN	299	259	304	277	289	285	100			110	109	109			
SCAT	35.6	28.4	40.8	45.5	47.1	42.7	43.4			42.2	47.4	78.3			
HMAX	267	332	413	383	390	380	300			286	295	328			
SHMAX	287	259	217	264	270	246	307			469	519	744			
KM															
420															
410															
400															
390															
380															
370	491														
360	585														
350	566														
340	504	619	124	311	311	313	323								
330	436	618	78.7	289	259	279								515	
320	393	593	43.6	232	189	228								513	
310	244	528	18.8	154	105	172	426							508	
300	82.1	441		87.1	48.6	91.8	426							476	498
290		338		46.2	12.4	31.7	420			474	475	484			
280		192		19.3			403			471	465	644			
270		75.0					376			457	441	444			
260		12.4					334			427	413	419			
250							278			391	387	392			
240							216			353	338	366			
230							162			316	299	342			
220							122			285	270	321			
210							92.5			262	253	304			
200							73.1			246	246	290			
190							59.5			237	243	279			
180							50.0			228	240	271			
170							45.0			215	237	265			
160							40.0			194	219	261			
150							38.2			165	190	245			
140							36.3			140	163	213			
130							35.1			124	150	181			
120							34.1			115	144	164			
110							30.5			12.4	39.4	41.7			
100							12.4								

ELECTRON DENSITY

TIME										60 W	29 JUN 1941	
0-1200	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
O-KP	B2	2	A2	?	2	A2	A2	A2	A2	2	2	1
HMIN	109	108		107	105		111		259	240	229	237
SCAT	66.1	66.4*		78.0	48.2		50.6		41.8	38.7	37.8	60.5
HMAXE	320	335		325	289		307		336	325	304	362
SHMAX	807	872		1041	687		648		349	339	302	412
KM												
270												541
360												541
450												546
540		675										523
330		674		882								503
320	654	667		881								477
310	650	652		874			720		584	627	672	438
300	640	629		859			714		529	582	600	386
290	620	597		837	747		694		456	520	581	326
280	624	561		809	740		666		354	433	541	248
270	662	570		776	717		612		194	317	402	153
260	562	474		729	677		566		306.3	186	403	86.9
250	477	226		643	622		490		754.4	301	446	44
240	420	381		581	551		421			142	162	
230	383	347		460	471		352					25.1
220	346	321		407	397		297					
210	317	301		341	334		246					
200	295	287		299	291		212					
190	280	280		274	242		183					
180	269	275		261	245		158					
170	263	264		252	233		136					
160	256	236		236	215		112					
150	249	212		213	195		92.2					
140	229	194		192	175		83.7					
130	188	182		174	158		80.3					
120	166	174		163	145		75.7					
110	39.6	128		155	137							

ELECTRON DENSITY

RAMFY AFR. PUERTO RICO 60 W 30 JUN 1961
 TIME 0000 0100 0200 0300 0400 0500 0600 0700 0800 0900 1000 1100
 O.K.P. 1 1 1 1 1 0 80 80 0 0 0 0 AD AD
 HMIN 225 232 232 232 240 240 219 108 109
 SCAT 33.3 42.3 43.5 40.8 44.8 42.7 36.1 45.9
 HMAX 308 309 310 337 311 304 248 278
 SHMAX 734 220 164 109 118 101 343 566
 KM
 330 219
 320 313 216 223
 310 485 426 313 207 223 181
 300 477 422 309 190 219 180
 290 446 405 297 166 210 176
 280 399 378 276 127 197 166 657
 270 341 331 239 66.6 175 151 651
 260 264 265 189 124.4 140 128 630
 250 160 172 117 91.5 99.8 442 592
 240 73.3 62.4 44.5 12.4 68.4 437 541
 230 2P₆ 40.4 416 468
 220 12.4 377 391
 210 333 326
 200 290 285
 190 253 260
 180 225 246
 170 201 230
 160 183 209
 150 166 171
 140 146 139
 130 123 127
 120 107 121
 110 61.1 41.7

ELECTRON DENSITY

TIME		1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
Q, KP	A0	50	1	A1	A1	1	A1	A1	A3	A3	F3		
HMIN		107	107	109	105	106				219	232		
SCAT		41.1	45.2	49.4	49.0	52.2				40.6	40.3		
HMAXF		528	329	328	319	329				287	335		
SHMAX		1058	1232	1267	1166	1203				485	248		
KM													
340												430	
330		1095	1260	1270		1298						428	
320		1085	1347	1370	1370	1286						413	
310		1031	1301	1334	1368	1254						384	
300		943	1222	1264	1320	1196						345	
290		880	1110	1178	1264	1116						294	
280		788	980		1164	1011						1031	
270		679	841	937	1034	896						1024	
260		610	696	793	888	777						987	
250		526	545	654	735	651						917	
240		452	460	528	570	527						540	
230		392	388	430	425	417						641	
220		350	330	361	334	341						247	
210		323	309	319	384	287						25.1	
200		301	288	291	261	253							
190		286	280	278	266	233							
180		277	275	264	230	218							
170		264	247	241	218	204							
160		242	253	223	168	187							
150		212	246	201	152	167							
140		179	211	182	144	145							
130		164	184	167	140	123							
120		157	173	158	137	112							
110		93.7	99.6	91.7	67.8	94.2							

AVERAGE ELECTRON DENSITY												AVERAGE ELECTRON DENSITY															
RAMEY AFR. PUERTO RICO						60 W						RAMEY AFR. PUERTO RICO						60 W									
TIME	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	TIME	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300		
COUNT	24	26	25	22	23	8	12	14	15	12	11	COUNT	16	15	15	11	13	10	8	10	10	8	10	25	26	24	
KP	2.0	1.8	1.7	1.6	1.8	1.0	1.7	1.0	1.7	1.0	1.9	KP	1.7	1.9	1.7	1.8	1.9	2.0	1.8	1.9	1.8	1.9	1.4	1.7	1.7	2.0	
HMIN	2.06	2.20	2.22	2.37	2.31	1.00	1.10	1.08	1.08	1.08	1.08	HMIN	1.08	1.08	1.08	1.08	1.07	1.08	1.08	1.07	1.08	1.08	1.08	1.08	1.08	1.08	
RATIO	6.2	6.4	6.5	5.9	6.1	6.1	4.9	4.0	4.1	3.7	3.4	RATIO	3.6	3.8	4.0	4.0	4.4	4.5	4.7	5.3	5.4	5.8	5.9	2.45	2.45	2.49	
SCAT	39.9	40.9	40.1	43.3	41.9	42.0	43.0	49.7	53.1	58.8	62.6	SCAT	56.7	51.8	50.7	52.9	49.1	49.4	49.0	45.7	47.2	42.9	41.9	41.8	41.9	41.8	
NMAX	762	723	633	487	436	389	528	669	854	918	918	NMAX	1190	1317	1358	1405	1405	1581	1581	1581	1581	1581	1581	1581	1581	1581	
HMAXF	341	318	312	331	322	320	284	285	294	306	339	HMAXF	342	335	329	321	323	302	293	345	344	348	348	348	348	348	
SHMAX	422	395	332	284	241	219	268	456	650	828	1086	SHMAX	1288	1301	1286	1297	1274	1301	1293	1293	1293	1293	1293	1293	1293	1293	
SHINF	2572	2435	2118	1658	1471	1316	1296	1947	2538	3064	3415	3675	SHINF	4644	5015	5118	5260	5507	5760	4149	4039	3240	3061	2759	2577	2577	
KM	950	59.6	51.4	42.6	36.8	31.2	27.6	22.2	31.8	42.8	53.0	64.7	KM	950	94.4	100	101	105	107	114	75.5	72.1	75.2	71.5	65.1	61.2	61.2
900	76.5	66.0	54.0	47.2	40.0	35.4	28.5	40.9	55.0	68.0	83.0	91.0	900	900	121	129	130	134	138	146	96.9	92.5	96.4	91.7	83.5	78.6	78.6
850	98.1	84.7	70.2	60.6	51.3	45.4	36.5	52.4	70.5	87.2	106	118	850	155	165	166	172	177	187	124	119	119	118	118	107	101	
800	126	139	90.0	77.6	65.8	58.2	46.9	67.0	9.4	112	136	151	800	199	211	213	221	227	240	159	152	152	152	152	137	129	
750	161	139	99.3	84.5	74.2	60.0	86.2	116	143	175	193	750	255	271	273	283	290	307	204	195	203	193	193	176	165		
700	205	178	147	127	108	95.2	76.8	110	148	183	223	246	700	325	346	349	361	371	393	261	250	259	246	224	211	211	
650	261	226	188	161	137	121	98.1	141	189	234	313	360	650	414	440	444	460	473	500	333	319	329	313	285	268		
600	330	287	238	204	177	154	125	179	240	297	360	396	600	523	557	563	583	600	634	423	405	415	395	360	339		
550	413	361	300	256	219	193	158	227	303	374	451	496	550	654	699	707	754	797	834	512	519	494	451	423	423		
500	509	447	374	316	271	240	198	284	378	466	557	611	500	806	864	875	905	936	988	667	641	637	608	554	521		
450	610	542	456	381	330	292	244	350	463	570	672	734	450	965	1042	1058	1093	1135	1198	817	790	760	727	662	622		
440	629	562	473	394	341	302	253	364	480	591	695	758	440	996	1077	1094	1130	1176	1240	821	783	750	683	641	641		
430	648	581	490	406	353	312	263	378	498	612	717	781	430	1026	1111	1130	1167	1216	1281	879	853	806	772	703	660		
420	667	592	506	418	364	323	273	392	516	633	738	803	420	420	1145	1164	1203	1232	1322	910	884	827	793	723	678		
410	684	617	522	430	375	332	283	406	533	654	759	824	410	1082	1176	1198	1237	1293	1362	941	916	847	812	740	695		
400	699	634	538	440	386	342	292	420	550	674	778	844	400	1106	1206	1229	1269	1329	1399	971	947	865	830	757	710		
390	713	650	553	450	396	351	302	434	566	694	796	861	390	1128	1233	1258	1299	1363	1434	1000	977	880	846	771	723		
380	725	656	567	459	405	359	312	447	582	712	811	877	380	1147	1258	1284	1324	1394	1466	1008	992	892	859	783	734		
370	734	678	580	466	413	365	320	460	597	729	825	889	370	1162	1278	1307	1348	1422	1495	1054	1034	1034	1034	1034	1034		
360	738	690	592	471	420	372	328	472	610	744	835	899	360	1172	1294	1326	1366	1446	1519	1077	1061	901	872	795	744		
350	737	697	601	472	426	376	336	484	622	758	843	904	350	1175	1306	1340	1378	1515	1538	1098	1085	895	867	793	738		
340	728	701	608	469	429	379	343	494	633	769	845	905	340	1169	1309	1347	1378	1478	1551	1116	1107	880	850	779	722		
330	705	699	610	461	430	380	349	503	640	777	842	900	330	1151	1302	1343	1378	1483	1551	1131	1125	854	820	753	693		
320	667	690	607	445	425	376	324	454	510	646	781	832	320	1118	1274	1323	1360	1473	1535	1139	1140	813	773	710	649		
310	612	674	595	419	411	366	315	515	647	781	813	862	310	1069	1220	1282	1320	1444	1499	1142	1149	754	706	646	588		
300	537	646	576	385	387	348	358	517	646	774	829	879	300	1005	1144	1217	1256	1391	1443	1134	1152	1152	1152	1152	563		
290	449	601	548	343	352	322	315	493	548	648	456	520	290	926	1048	1127	1170	1315	1363	1111	1107	680	623	563	511		
280	266	536	504	293	305	288	347	509	628	736	700	725	280	837	938	1017	1060	1209	1256	1063	1123	498	424	352	318		
270	266	442	445	234	242	333	498	608	703	649	662	720	270	742	820	891	932	1067	1122	994	1074	397	322	240			
260	188	328	376	174	177	188	312	480	580	659	591	692	260	647	705	757	793	912	966	901	997	288	224	141			
250	118	218	299	117	120	135	212	453	542	608	530	521	250	558	598	631	657	748	805	788	893	194	144	72.6			
240	59.6	122	211	71.3	73.5	85.0	245	417	493	548	468	456	240	480	504	522	530	591	642	659	755	120	84.7	24.6			
230	21.4	56.0	115	38.2	39.5	41.5	203	374	438	484	411	399	230	416	429	436	430	460	488	528	573	66.0	37.9	4.0			
220	6.2	24.4	58.8	16.3	13.7	16.4	16.4	323	380	419	364	357	220	368	376	373	360	367	377	405	394	31.9	10.9	5.5			
210	0.5	6.3	16.3	7.2	1.1	1.1	1.1	267	328	360	330	328	210	337	340	332	317	310	299	304	247	14.1	2.4	0.5			
200	1.0	1.4	1.0	1.0	1.0	1.0	1.0	99.8	221	286	315	309	200	317	318	308	292	277	257	230	144	2.0	0.5				
190								78.2	188	283	289	295	190	304	303	293	273	256	231	185	88.6						
180								62.1	159	229	260	274	180	292	293	282	266	242	211	155	62.5						
170								50.8	134	205	239	260	275	170	280	282	272	253	227	191	132	49.9					
160								43.3	111	181	216	240	260	160	267	266	257	237	207	172	111	43.0					
150								38.5	94.0	156	189	214	235	150	247	242	236	213	208	186	131	94.7	38.7				
140								35.4	82.3	133	163	185	203	140	217	212	208	186	162	131	84.2	36.1					
130								33.7	75.8	116	142	160	176	130	189	185	180	165	142	117	7						

TABLES OF IONOSPHERIC DATA

APRIL 1961 - FEBRUARY 1955

Table 1

Talara, Peru (4.6° S, 81.3° W)							April 1961		
Time	h'F2	foF2-Count	h'E	foF1	h'E	foE	foEs	(MHz)F2	
00	7.9	26	210					3.25	
01	6.55	28	<230					3.00	
02	6.45	26	240					3.10	
03	5.7	27	235					3.25	
04	4.9	26	240					3.28	
05	3.6	26	250					3.25	
06	3.2	26	265					3.00	
07	6.6	29	250	125	2.00	2.4		3.20	
08	8.7	29	230	115	2.80			3.00	
09	---	9.6	29	220	115	3.25	3.4	2.70	
10	---	9.85	30	210	---	113	3.50	3.6	
11	---	10.05	30	205	(5.0)	112	3.65		
12	(340)	10.0	30	200	(5.0)	111	3.70		
13	(340)	10.05	30	200	4.9	111	3.70		
14	---	10.15	30	200	---	111	3.60		
15	---	11.0	29	200	---	111	3.40	3.4	
16	---	11.4	29	210	115	3.05		2.55	
17	---	11.15	30	230	(117)	2.65	2.9	2.50	
18	---	10.8	30	260	<130	2.00	3.0	2.45	
19	---	10.7	30	305			2.5	2.40	
20	---	10.8	27	320			1.0	2.45	
21	---	11.3	23	265			2.0	2.70	
22	---	11.65	22	230				3.20	
23	---	>10.8	25	210				3.35	

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 3

Resolute Bay, Canada (74.7° N, 94.9° W)							March 1961		
Time	h'F2	foF2-Count	h'E	foF1	h'E	foE	foEs	(MHz)F2	
00	4.2	30	250					3.0	
01	3.9	30	255					3.0	
02	3.8	29	275					3.0	
03	3.6	30	280					2.9	
04	4.2	30	260					3.0	
05	3.7	27	270	---				3.0	
06	4.3	29	260	1.8				3.0	
07	4.3	30	250	2.0				3.05	
08	(340)	4.9	30	240	---			3.0	
09	315	5.0	29	240	3.2			3.0	
10	340	5.2	27	240	3.6			2.9	
11	340	5.4	30	235	3.6			3.0	
12	330	5.4	29	240	3.7			2.9	
13	320	5.7	29	230	3.6			3.0	
14	295	5.2	26	235	3.8			3.0	
15	320	5.1	27	240	3.6			3.0	
16	310	5.0	27	250	---			3.0	
17	---	4.9	30	250	---			2.95	
18	---	4.5	31	260	2.0			3.0	
19	4.9	31	250	---	1.8			3.0	
20	4.9	31	260	---				2.9	
21	4.7	29	250					3.0	
22	4.1	30	260					3.0	
23	4.1	31	260					2.95	

Time: 90.0°W.

Sweep: 1.6 Mc to 20.0 Mc in 15 seconds.

Table 5

Kiruna, Sweden (67.0° N, 20.3° E)							March 1961		
Time	h'F2	foF2-Count	h'E	foF1	h'E	foE	foEs	(MHz)F2	
00	(3.2)	3	325					3.4	
01	(3.2)	7	340					2.5	
02	(3.0)	6	335					1.8	
03	(2.7)	8	325	---	---	1.4		(2.55)	
04	2.7	11	290	---	---			2.7	
05	3.4	13	275	---	---			2.8	
06	4.0	20	265	---	---			2.9	
07	---	5.0	25	250	---	1.7		3.0	
08	290	5.8	26	240	3.6	2.0		3.0	
09	290	5.9	27	230	3.6	110	2.3	3.05	
10	280	6.2	28	230	3.8	110	2.4	3.0	
11	280	6.0	25	225	3.8	110	2.6	3.0	
12	275	7.0	29	230	3.8	110	2.6	3.1	
13	260	6.7	31	225	3.8	110	2.6	3.0	
14	260	6.5	29	235	3.6	115	2.4	3.1	
15	260	6.2	30	240	3.4	115	2.2	3.0	
16	---	6.0	20	245	---	120	2.2	3.1	
17	5.6	23	250	---	1.8			3.1	
18	5.2	18	250	---	---			3.0	
19	5.6	10	250					(2.9)	
20	3.8	10	275		3.0			(2.9)	
21	(4.0)	7	280		3.0			(2.9)	
22	(3.2)	5	300		3.0			---	
23	(3.1)	5	305		3.0			(2.7)	

Time: 15.0°E.

Sweep: 0.8 Mc to 15.0 Mc in 30 seconds.

APRIL 1961 - FEBRUARY 1955

Table 2

Huancayo, Peru (12.0° S, 75.3° W)							April 1961		
Time	h'F2	foF2-Count	h'E	foF1	h'E	foE	foEs	(MHz)F2	
00	7.6	25	225					3.25	
01	7.0	29	220					3.32	
02	5.75	26	225					3.25	
03	4.7	27	240					3.25	
04	3.95	20	240					3.35	
05	3.2	27	245					3.35	
06	4.05	20	265					3.05	
07	7.7	29	240		123	2.30		3.25	
08	9.6	28	225		117	(2.90)	5.3	3.02	
09	---	10.3	29	215	---	(3.30)	6.0	2.65	
10	---	9.4	29	210	---	(3.60)	7.0	2.50	
11	---	8.7	29	200	---	(3.70)	6.6	2.50	
12	---	8.6	29	200	---	(3.80)	7.0	2.50	
13	---	>9.0	30	200	---	(3.70)	7.0	2.52	
14	---	9.5	30	200	---	(3.50)	6.5	2.55	
15	10.0	30	200	113	(3.35)	6.7		2.55	
16	10.3	29	220	113	(2.95)	6.2		2.55	
17	10.0	29	250	(117)	(2.40)	5.5		2.50	
18	9.55	30	280	---	(1.45)			2.50	
19	8.6	29	340					2.40	
20	8.6	25	305					2.55	
21	8.7	23	250					2.00	
22	8.6	23	230					3.12	
23	8.2	25	225					3.20	

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 3

Tromso, Norway (69.7° N, 19.0° E)							March 1961		
Time	h'F2	foF2-Count	h'E	foF1	h'E	foE	foEs	(MHz)F2	
00	(3.3)	2	---					4.0	
01	(3.1)	3	---					3.2	
02	(2.6)	4	---					3.1	
03	(3.1)	5	---					2.7	
04	(2.6)	6	(310)					3.0	
05	>3.2	9	290	---	---	2.2		(2.70)	
06	3.9	12	275	---	---			(2.85)	
07	5.1	15	250	---	---			3.10	
08	(250)	5.7	20	245	120	2.00		3.10	
09	---	6.0	17	245	120	2.20		(3.10)	
10	(240)	6.0	21	235	110	2.60		3.05	
11	270	6.6	24	235	3.70	115		3.10	
12	(245)	6.7	24	225	3.60	120	2.50	3.10	
13	(245)	6.8	24	240	120	2.55		3.10	
14	(245)	6.4	28	240	110	2.40		3.10	
15	(240)	6.2	24	245	120	2.25		3.10	
16	250	6.0	25	250	130	2.20		3.10	
17	---	5.6	17	250	130	1.70	1.8	3.10	
18	---	5.0	16	250	130	1.95		(3.00)	
19	(4.6)	6	255					2.9	
20	(4.5)	5	(260)					3.2	
21	(4.0)	2	(285)					>3.3	
22	(3.8)	2	---					3.4	
23	(3.5)	2	---					3.0	

Time: 15.0°E.

Sweep: 0.7 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 6

Sodankyla, Finland (67.4° N, 26.6° E)							March 1961		
Time	h'F2	foF2-Count	h'E	foF1	h'E	foE	foEs	(MHz)F2	
00	(4.7)	3	320					2.7	
01	(3.6)	2	340					2.3	
02	(3.8)	2	340					2.3	
03	(3.5)	3	330					1.9	
04	(3.4)	2	310					---	
05	(3.6)	1	300	---	E				

Table 7

Lulea, Sweden (65.6° N, 22.1° E)							March 1961	
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2
00	(3.2)	12	320					(2.7)
01	2.7	11	315					(2.8)
02	(2.5)	12	305					(2.7)
03	2.4	11	295					2.85
04	2.3	14	300					2.85
05	2.8	19	290					2.9
06	3.8	22	260	---	---			3.15
07	5.1	23	250	135	2.1	3.2		
08	5.8	24	240	130	2.3	3.2		
09	6.0	21	230	130	2.5	3.1		
10	6.7	21	230	125	2.6	3.2		
11	6.9	19	225	125	2.7	3.1		
12	---	7.0	25	120	2.8	3.2		
13	---	6.9	26	125	2.6	3.1		
14	7.0	24	240	130	2.6	3.2		
15	6.4	25	240	135	2.4	3.2		
16	6.3	25	245	140	2.2	3.1		
17	6.0	26	250	---	2.0	3.2		
18	5.8	18	240	---	---	3.1		
19	4.6	20	250			3.0		
20	4.6	16	250			3.1		
21	3.6	14	270			3.0		
22	3.5	11	280			(2.9)		
23	(3.3)	9	300			(2.8)		

Time: 15.0°E.

Sweep: 0.65 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 9

Nurmijarvi, Finland (60.5° N, 24.6° E)							March 1961	
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2
00	(3.0)	3	300					----
01	(2.9)	3	310					----
02	(2.9)	2	320					----
03	(2.6)	2	315					----
04	(1.9)	6	300					(2.90)
05	(2.0)	5	300					(3.05)
06	3.2	13	300			3.10		
07	4.2	18	250	---		3.20		
08	5.2	25	220	---	2.20	3.20		
09	6.1	27	220	---	2.30	3.20		
10	6.8	26	210	3.8	2.60	3.30		
11	7.0	28	205	---	2.60	3.20		
12	7.2	27	205	---	2.80	3.20		
13	7.7	27	210	---	2.65	3.20		
14	7.2	26	220	---	2.70	3.30		
15	6.8	25	220	---	2.70	3.30		
16	7.0	27	220	---	2.30	3.30		
17	7.0	26	220	---	2.10	3.40		
18	6.8	23	230	---		3.30		
19	6.2	13	230			3.20		
20	5.2	14	230			3.20		
21	(5.8)	9	250			(3.20)		
22	(3.0)	4	270			----		
23	(3.0)	5	290			(2.90)		

Time: 30.0°E.

Sweep: 1.0 Mc to 25.0 Mc in 1 minute.

Table 11

Churchill, Canada (58.8° N, 94.2° W)							March 1961	
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2
00	3.3	22	280			4.5	---	
01	3.4	26	285			4.0	---	
02	3.2	16	290			4.0		
03	3.6	18	330			2.0	4.0	
04	3.4	20	315			2.2	3.2	
05	3.8	19	355			2.7	4.0	
06	3.9	14	300			2.1	4.0	
07	---	4.0	22	305	---	2.0	4.0	(3.0)
08	---	4.0	23	300	---	2.9	3.1	
09	305	5.2	26	270	3.9	3.0	3.0	
10	330	5.7	28	225	4.1	3.0	3.0	
11	325	6.0	30	230	4.2	3.0	3.0	
12	330	6.2	29	220	4.2	3.1	3.0	
13	330	6.6	28	220	4.2	3.0	3.0	
14	320	6.7	30	220	4.2	2.9	3.0	
15	300	7.0	31	230	4.0	2.9	3.0	
16	290	6.5	31	240	---	2.6	3.0	
17	(295)	6.1	31	260	2.4	3.0	3.0	
18	5.8	30	270	2.0		3.0	17	
19	5.0	27	270	2.0	3.0	3.0	19	
20	4.2	26	300	2.2	3.6	---	20	
21	4.4	25	305	2.2	4.5	---	21	
22	3.8	22	290	---	5.6	---	22	
23	4.2	22	280	---	5.5		23	

Time: 90.0°W.

Sweep: 1.0 Mc to 17.0 Mc in 16 seconds.

Table 8

Lycksele, Sweden (64.6° N, 18.8° E)							March 1961	
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2
00			3.0	28	280			2.2
01			(3.0)	27	300			2.4
02			2.7	25	295			2.4
03			2.3	25	285			2.6
04			2.1	27	280			2.1
05			2.6	28	280			2.6
06			3.5	29	255			2.7
07			4.7	31	240	---		2.8
08			(300)	31	230	3.6		3.0
09			290	29	210	3.8		3.1
10			300	30	205	3.9		3.0
11			290	30	205	4.0		3.0
12			285	6.9	31	4.0		3.0
13			280	6.6	31	4.0		3.0
14			290	6.7	31	4.0		3.0
15			(260)	31	225	3.8		3.0
16			---	31	230	---		3.0
17			(6.6)	31	240	120		3.0
18			6.0	28	240	150		3.0
19			5.2	29	235	150		3.0
20			4.8	28	240	150		2.8
21			3.5	29	250	150		2.8
22			3.5	26	260	150		2.7
23			3.1	26	285	150		2.7

Time: 15.0°E.

Sweep: 0.3 Mc to 20.0 Mc in 3 minutes.

Table 10

Upsala, Sweden (59.8° N, 17.6° E)							March 1961	
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2
00			2.7	25	280	---		2.7
01			2.4	26	295	---		2.7
02			(2.1)	29	280	---		(2.7)
03			(1.9)	29	275	---		(2.7)
04			(2.0)	29	275	---		(2.7)
05			2.2	28	270	120		2.8
06			3.4	30	245	110		2.9
07			5.0	30	235	110		3.2
08			5.8	30	215	105		3.2
09			(330)	30	210	4.0		3.15
10			295	6.6	31	4.2		3.1
11			305	7.0	31	4.1		3.1
12			290	7.3	31	4.3		3.1
13			(295)	7.2	31	4.2		3.2
14			7.1	31	210	100		3.2
15			7.1	31	220	100		3.2
16			7.2	31	230	105		3.25
17			6.9	31	235	(110)		3.2
18			6.7	31	235	(115)		3.2
19			6.0	31	230	---		3.1
20			5.2	30	230	100		3.1
21			4.4	26	240	100		3.0
22			3.4	27	255	100		2.8
23			3.2	26	265	100		2.7

Time: 15.0°E.

Sweep: 0.3 Mc to 20.0 Mc in 6 minutes, automatic operation.

Table 12

Inverness, Scotland (57.4° N, 4.2° W)							March 1961	
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2
00			3.0	27				2.70
01			>2.6	28				(2.60)
02			(2.3)	28				2.65
03			>2.2	27				2.65
04			>2.1	26				2.65
05			2.1	26				2.70
06			2.6	29				2.85
07			4.2	30				3.10
08			5.4	30				3.10
09			5.8	30				3.10
10			6.2	30				3.10
11			6.4	30				3.10
12			6.6	30				3.05
13			6.8	31				3.10
14			6.9	31				3.10
15			>7.0	31				3.10
16		</td						

Table 13

Oe Bilt, Holland (52.1° N, 5.2° E)								March 1961	
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00	3.4	30	310					2.75	
01	3.4	30	(310)					2.75	
02	3.4	31	(310)					2.75	
03	3.2	31	<310					2.80	
04	2.7	31	(300)					2.80	
05	2.4	31	<300					2.90	
06	3.9	31	260					3.20	
07	(260)	5.3	31	230	3.2	130	2.0	3.25	
08	290	5.9	31	225	3.8	120	2.4	3.20	
09	285	6.8	31	215	4.0	120	2.8	3.20	
10	290	7.2	30	220	4.0	118	2.9	3.0	
11	285	7.4	31	215	4.4	116	3.1	3.15	
12	280	7.7	31	220	4.4	112	3.2	3.20	
13	280	7.5	30	220	4.4	116	3.1	3.20	
14	280	7.5	31	225	4.1	118	3.0	3.15	
15	270	7.5	31	230	---	120	2.7	3.20	
16	---	7.5	31	240	---	122	2.4	3.20	
17	---	7.4	30	250	---	<150	2.0	3.20	
18	7.2	28	240	---	---	---	---	3.20	
19	6.6	20	240					3.15	
20	5.3	31	245					3.10	
21	4.4	31	260					3.00	
22	3.9	31	290					2.85	
23	3.7	31	300					2.75	

Time: 0.0°.
Sweep: 1.8 Mc to 18.0 Mc in 4 minutes.

Table 15

St. John's, Newfoundland (47.6° N, 52.7° W)								March 1961	
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00	(3.8)	23	290					(2.9)	
01	3.5	21	<300					2.8	
02	2.9	24	280					2.9	
03	2.7	24	<290					2.8	
04	2.4	22	260					3.0	
05	2.4	25	270					3.0	
06	3.8	31	250					3.2	
07	5.4	30	220					3.3	
08	(270)	6.0	31	210	---	2.00		3.2	
09	280	6.8	30	200	---	3.00		3.2	
10	205	7.0	31	200	4.2	3.10		3.2	
11	290	7.4	31	200	4.2	3.20		3.1	
12	285	7.9	31	205	4.2	3.30		3.1	
13	285	7.9	31	205	4.2	3.20		3.0	
14	275	7.8	31	210	---	3.00		3.1	
15	(285)	7.6	31	220	---	2.90		3.1	
16	---	7.5	31	230	---	2.60		3.0	
17	7.4	31	240	---	---	3.1			
18	7.1	31	235	---	---	3.0			
19	6.2	29	240	---	---	3.0			
20	(5.4)	27	250	---	---	(3.0)			
21	(4.7)	24	275	---	---	2.9			
22	(4.5)	21	290	---	---				
23	4.1	22	295	---	---	2.8			

Time: 60.0°W.
Sweep: 1.6 Mc to 20.0 Mc in 15 seconds.

Table 17

Sotterns, Switzerland (46.6° N, 6.7° E)								March 1961	
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00	3.9	31	280					2.8	
01	3.8	31	300					2.8	
02	3.7	31	300					2.7	
03	3.8	30	290					2.8	
04	3.7	31	280					2.8	
05	3.6	30	270					2.9	
06	3.0	30	260					3.0	
07	4.4	31	240	---	---	---		3.2	
08	(270)	5.6	31	230	3.4	120	2.2	3.3	
09	260	6.7	31	220	3.6	110	2.6	3.35	
10	260	7.0	30	200	4.1	100	2.9	3.2	
11	270	7.4	30	200	4.3	100	3.0	3.2	
12	280	7.9	30	200	4.4	100	3.1	3.3	
13	270	8.0	26	200	4.4	100	3.2	3.2	
14	270	8.2	25	220	4.6	100	3.1	3.2	
15	270	7.9	29	220	4.2	100	3.0	3.2	
16	260	7.8	30	230	3.9	110	2.8	3.2	
17	---	7.6	31	240	---	110	2.5	3.3	
18	7.7	31	240	---	120	1.9		3.3	
19	6.9	30	230					3.2	
20	6.3	30	230					3.2	
21	5.6	30	240					3.1	
22	4.2	29	250					3.0	
23	4.0	30	270					2.9	

Time: 15.0°E.
Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 14

Winnipeg, Canada (49.9° N, 97.4° W)								March 1961	
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00			3.0		28	<300			2.9
01			2.8		27	305			(3.0)
02			2.8		22	315			(2.8)
03			2.8		19	<335			(2.8)
04			3.0		15	300			---
05			3.0		15	310			---
06			3.0		15	285			(3.0)
07			3.6		23	250			2.0
08			4.9		24	230			2.4
09			295		27	220	4.0		3.1
10			5.8		30	210	4.2		3.1
11			325		30	210	4.3		3.0
12			6.9		27	200	4.4		3.0
13			300		29	210	4.4		3.0
14			300		30	215	4.2		3.1
15			290		30	215	4.2		3.1
16			275		30	220	3.9		3.1
17			7.1		30	220			3.1
18			7.0		30	240			3.0
19			6.9		30	240			3.0
20			5.6		29	235			3.0
21			4.4		30	250			3.1
22			3.8		29	260			3.0
23			3.2		30	270			3.0

Time: 90.0°W.
Sweep: 1.6 Mc to 20.0 Mc in 15 seconds.

Table 16

Graz, Austria (47.1° N, 15.5° E)								March 1961	
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00			>3.4		30	325			
01			(3.6)		31	330			
02			>3.5		30	320			
03			(3.6)		28	320			
04			>3.4		28	315			
05			3.4		27	295			
06			3.5		31	275			
07			>5.6		31	240			
08			6.6		29	240			(2.6)
09			280		27	230	(4.1)		---
10			7.9		27	225	4.2		3.0
11			290		31	<240	(4.6)		(3.2)
12			290		28	<250	(4.5)		---
13			280		29	<250			
14			280		30	<250			(3.1)
15			280		31	230			(3.0)
16			280		31	230			1.7
17			7.8		31	240			2.0
18			6.7		31	240			3.3
19			5.7		31	240			3.2
20			>5.7		30	240			3.1
21			5.7		30	240			3.1
22			4.7		29	250			3.1
23			4.3		28	260			3.1

Time: Local.
Sweep: 2.0 Mc to 18.0 Mc in 50 seconds.

Table 18

Ottawa, Canada (45.4° N, 75.9° W)								March 1961	
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00			3.7		30	285			---
01			3.2		30	300			---
02			3.0		29	300			---
03			3.0		27	300			---
04			2.8		27	315		</	

Table 19

Wakkanai, Japan (45.4° N, 141.7° E)								March 1961	
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00	4.6	30	305					2,80	
01	4.5	29	300					2,80	
02	4.4	29	285					2,85	
03	4.4	29	280					2,90	
04	4.3	29	260					2,95	
05	4.0	30	260					2,95	
06	5.3	31	240					3,25	
07	7.1	31	235					3,35	
08	8.0	31	235					3,25	
09	(265)	8.8	30	220	---			3,00	
10	260	9.4	30	220	4.2			3,10	
11	265	9.7	30	215	4.4			3,20	
12	(265)	9.8	29	225	4.5			3,20	
13	270	9.3	29	230	4.3			3,20	
14	(265)	9.0	29	235	---			3,10	
15	---	8.6	30	240	---			3,25	
16		8.4	30	240	---			3,25	
17		8.3	29	230	---			3,35	
18		7.1	29	230				3,20	
19		6.0	29	245				3,10	
20		5.4	28	260				3,00	
21		5.1	29	275				2,95	
22		4.7	29	300				2,85	
23		4.7	29	300				2,80	

Time: 135.0°E.
Sweep: 1.0 Mc to 17.0 Mc in 1 minute.

Table 21

Akita, Japan (39.7° N, 140.1° E)								March 1961	
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00	4.7	27	290					2,80	
01	4.6	28	290					2,80	
02	4.6	29	275					2,85	
03	4.5	29	255					2,95	
04	4.2	29	255					2,95	
05	4.1	29	260					2,95	
06	5.3	29	245		1.80			3,20	
07	7.2	29	245		2,25			3,45	
08	245	8.6	30	240	---			3,20	
09	250	9.1	30	220	---			3,05	
10	250	9.5	29	210	---			3,20	3,4
11	270	10.2	30	210	---			3,30	
12	270	10.4	30	215	---			3,45	
13	265	10.2	30	225	---			3,40	
14	260	9.7	30	225	---			3,25	
15	255	9.2	28	240	---			3,00	
16	(250)	9.0	28	245	---			2,60	
17		8.3	28	245	2.05	2.1		3,30	
18		7.6	28	230				3,30	
19		6.2	28	225				3,10	
20		5.4	28	245				2,95	
21		5.0	27	260				2,90	
22		5.0	27	280				2,80	
23		4.9	27	290				2,80	

Time: 135.0°E.
Sweep: 1.0 Mc to 20.0 Mc in 20 seconds.

Table 23

Yamagawa, Japan (31.2° N, 130.6° E)								March 1961	
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00	4.8	25	300					2,80	
01	4.8	25	300					2,80	
02	4.7	27	290					2,90	
03	4.5	28	255					3,05	
04	4.0	27	240					3,15	
05	3.4	27	260					2,95	
06	3.6	27	290					2,90	
07	6.1	27	240		2,10			3,40	
08	8.0	28	240		2,60			3,40	
09	---	6.6	30	225	3,00			3,30	
10	(270)	9.5	31	215	3,25	3,3		3,10	
11	290	10.9	31	220	3,40	3,6		3,10	
12	290	11.4	31	220	3,50			3,05	
13	290	12.1	30	235	5.1			3,50	
14	285	12.3	30	<235	5.0			3,10	
15	270	11.6	31	230	---			3,15	
16	(260)	10.8	31	235	3,30			3,15	
17		10.5	31	240	3,00	3,1		3,15	
18		9.4	30	240	2,55	2,8		3,25	
19		(7.5)	31	230	1.95	2.3		3,30	
20		(6.4)	30	230	2.0	(3.15)		3,10	
21		5.5	26	255		(3.00)		2,95	
22		5.2	25	280		2,90		2,95	
23		4.9	25	290		2,85			

Time: 135.0°E.
Sweep: 1.0 Mc to 20.0 Mc in 30 seconds.

Table 19

Table 20

Rome, Italy (41.8° N, 12.5° E)								March 1961	
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00	4.4	28	300						2,75
01	4.3	29	300						2,70
02	4.3	29	300						2,70
03	4.2	30	300						2,75
04	4.0	30	280						2,80
05	4.0	30	270						2,90
06	3.8	30	250						3,05
07	5.8	27	240						3,35
08	6.7	27	240						3,25
09	7.6	28	220						3,20
10	8.0	26	210						3.15
11	8.9	27	210						3.10
12	9.0	28	210						3.00
13	9.2	29	220						3,05
14	9.2	30	220						3,15
15	8.8	30	230						3,10
16	8.6	30	230						3,15
17	8.6	29	240						3,15
18	8.6	29	240						3,15
19	8.0	30	230						3,25
20	6.0	31	240						3,05
21	5.1	30	255						2,85
22	5.1	26	250						2,80
23	4.8	25	260						2,80

Time: 15.0°E.
Sweep: 1.4 Mc to 15.0 Mc in 5 minutes, automatic operation.

Table 21

Tokyo, Japan (35.7° N, 139.5° E)								March 1961	
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00	4.6	30	300						2,75
01	4.6	30	300						2,80
02	4.6	30	285						2,85
03	4.4	29	255						2,95
04	4.1	29	255						2,90
05	4.0	29	290						2,80
06	5.1	29	240						3,15
07	7.4	28	230						3,30
08	8.4	28	225						3,30
09	255	9.0	30	225	(4.5)				3,20
10	260	9.6	31	210					3,10
11	270	10.5	31	215					3,10
12	275	10.9	31	210	4.8				3,10
13	275	10.9	31	230	(5.0)				3,10
14	260	10.1	31	225	(4.4)				3,10
15	260	10.0	31	230					3,15
16	250	9.2	31	245					3,20
17	8.8	30	240						3,25
18	8.0	30	230						3,25
19	6.0	31	240						3,05
20	5.1	30	255						2,85
21	5.0	30	290						2,80
22	4.8	30	295						2,80
23	4.7	30	300						2,75

Time: 135.0°E.
Sweep: 1.0 Mc to 20.0 Mc in 20 seconds.

Table 23

Formosa, China (25.0° N, 121.5° E)								March 1961	
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00	7.0	31	280						2,80
01	6.5	29	260						2,85
02	6.3	31	225						3,00
03	5.3	31	225						3,30
04	3.9	31	230						3,10
05	3.2	31	250						3,00
06	4.3								

Table 25

El Cerillo, Mexico (19.3° N, 99.5° W)							March 1961		
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(MC1000)F2	
00	4.6	31	260				3.10		
01	4.7	31	250				3.10	01	
02	4.4	31	240				3.20	02	
03	3.6	31	240				3.10	03	
04	3.4	31	250				3.00	04	
05	3.3	31	280				2.90	05	
06	3.2	30	280				2.90	06	
07	5.2	31	240	---	127	1.90	3.20	07	
08	7.4	31	230	---	109	2.30	3.40	08	
09	8.4	30	210		103	2.90	3.20	09	
10	9.4	30	210		103	3.30	3.10	10	
11	(290)	10.4	30	210	4.9	105	3.50	11	
12	(290)	10.8	30	200	4.9	103	3.70	12	
13	285	11.4	30	210	4.9	103	3.70	13	
14	(280)	11.9	30	215	5.0	105	3.60	14	
15	---	11.4	30	220	---	103	3.55	15	
16	11.0	30	230		103	3.30	4.0	16	
17	10.4	30	230		103	2.85	3.8	17	
18	9.4	30	230		109	2.15	3.4	18	
19	8.2	28	220				3.3	19	
20	6.6	30	220				3.20	20	
21	5.4	30	230				3.10	21	
22	4.8	29	250				2.90	22	
23	4.8	30	270				2.90	23	

Time: 90.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 18 seconds.

Table 26

Baguio, P. I. (16.4° N, 120.6° E)							March 1961		
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(MC1000)F2	
00			(9.8)	26	255				
01			>9.5	30	245			(3.15)	
02			9.1	29	230			(3.20)	
03			5.6	29	225			(3.40)	
04			>4.0	29	240			(3.30)	
05			(3.3)	28	260			(3.20)	
06			4.2	30	280			(3.10)	
07			7.5	31	260	(129)	(2.30)	2.4	
08			9.1	31	245	121	(2.90)	3.00	
09			>10.0	30	<240	121	(3.25)		
10			(310)	>10.4	27	225	119	(3.50)	
11			(330)	>10.4	28	(220)	(119)		
12			(330)	10.4	29	220	---		
13			(325)	(10.8)	29	215	124		
14			(11.3)	27	(225)	119	(3.50)		
15			(320)	>12.0	27	<240	121	(3.30)	
16			(300)	>12.0	30	245	121	(2.90)	
17			>11.9	30	260	<128	(2.35)	2.8	
18			11.0	31	280	---	---	(2.80)	
19			11.0	29	310			(2.70)	
20			(10.6)	21	290			(2.85)	
21			>10.1	20	260			(2.95)	
22			>10.0	23	255			(2.95)	
23			(10.3)	25	260			(3.10)	

Time: 120.0°E.

Sweep: 1.0 Mc to 25.0 Mc in 27 seconds.

Table 27

Singapore, British Malaya (1.3° N, 103.8° E)							March 1961		
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(MC1000)F2	
00	9.6	22	200	---			3.15		
01	7.2	24	230	125	----		3.00		
02	6.9	25	240	125	----		3.05		
03	6.1	25	235	140	----		3.20		
04	5.2	27	235	---	----		3.30		
05	4.1	27	235	---	----		3.40		
06	4.1	26	250	---	120	1.25	3.15		
07	7.6	27	240	---	120	2.20	2.4	3.20	
08	9.0	27	230	---	110	2.90	3.1	3.05	
09	9.8	29	210	4.5	105	3.30	3.4	2.60	
10	330	10.3	25	4.9	105	3.60		2.20	
11	340	11.0	20	200	4.9	3.80		2.15	
12	340	10.7	24	200	5.0	3.85		2.20	
13	320	11.0	28	200	4.9	3.80		2.30	
14	300	11.0	27	200	4.8	3.70		2.30	
15	305	11.5	28	200	4.5	3.45		2.40	
16	240	11.6	28	205	---	110	3.10	2.55	
17	240	11.8	27	240	---	110	2.50	2.55	
18	---	12.0	26	260	---	110	----	2.50	
19	11.7	24	305	---			2.45		
20	11.8	19	315	---			2.50		
21	12.1	17	255	---			2.85		
22	12.2	16	220	---			3.10		
23	11.6	19	205	---			3.25		

Time: 105.0°E.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 28

Huancayo, Peru (12.0° S, 75.3° W)							March 1961		
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(MC1000)F2	
00			9.1	12	225			3.20	
01			7.7	15	220			3.30	
02			6.0	19	225			3.30	
03			4.85	20	230			3.30	
04			4.1	25	240			3.35	
05			3.1	23	255			3.30	
06			4.2	25	265	---	---	2.95	
07			7.85	30	240	121	2.38	2.6	
08			9.5	31	225	116	(2.98)	7.2	
09			10.0	31	215	111	(3.40)	7.4	
10			(320)	9.5	31	205	---	2.55	
11			(315)	9.4	31	200	4.9	7.6	
12			325	9.4	31	200	4.9	7.6	
13			320	10.1	31	200	---	2.50	
14			---	10.7	29	200	---	2.55	
15			11.0	30	200	111	(3.42)	7.0	
16			11.0	29	210	112	(3.10)	7.0	
17			10.9	29	235	117	(2.60)	5.8	
18			10.6	29	265	<143	1.75	4.5	
19			>9.5	27	315			2.50	
20			8.8	12	<325			2.45	
21			9.05	12	(260)				
22			(9.9)	8	245				
23			10.0	13	240			3.05	

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 29

Townsville, Australia (19.3° S, 146.7° E)							March 1961		
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(MC1000)F2	
00	(6.3)	19	270			1.8	(2.90)		
01	>6.0	21	250			3.00			
02	6.1	22	250			3.00			
03	>5.0	21	245			3.10			
04	>4.5	27	250		2.1	3.00			
05	4.0	27	255			2.95			
06	4.2	28	260		2.3	3.05			
07	>6.5	20	240	2.30		3.25			
08	7.2	21	230	2.80	3.0	3.30			
09	8.4	21	220	---	3.15	3.4			
10	8.5	23	205	4.6	3.40	3.7	3.05		
11	8.9	18	200	4.9	3.55	3.8	3.10		
12	(11.0)	17	200	4.8	3.65	3.8	3.05		
13	>11.0	22	210	4.8	3.60	4.1	3.10		
14	>11.0	22	210	4.8	3.55	4.1	3.10		
15	(11.0)	23	230	---	3.45	4.0	---		
16	>10.5	7	240		3.10	3.6	---		
17	>8.4	11	250	2.70	3.8	---			
18	>8.0	9	250	1.75	2.6	---			
19	>7.0	16	240		2.6	---			
20	>6.6	16	250		2.2	(2.80)			
21	>6.8	20	280		2.2	(2.85)			
22	(6.8)	21	290		2.0	(2.90)			
23	>6.5	17	290			---			

Time: 150.0°E.

Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 30

Johannesburg, Union of S. Africa (26.1° S, 28.1° E)							March 1961		
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(MC1000)F2	
00			4.1	31	---			1.5	
01			3.9	31	---			2.90	
02			3.9	31	---			3.05	
03			3.4	31	---			1.1	
04			3.2	31	---			1.0	
05			3.1	31	---			1.1	
06			4.0	30	250	---	1.4	2.	

Table 31

Cape Town, Union of S. Africa (34.1° S, 18.3° E)								March 1961		
Time	h°F2	foF2-Count	h°F	foF1	h'E	foE	foEs	(MC3000)F2		
00	3.4	30	---			<1.6		2.95		
01	3.4	30	---			<1.6		2.90		
02	3.5	30	---			<1.6		2.85		
03	3.7	30	---			<1.6		2.85		
04	3.6	30	---			<1.5		2.95		
05	3.4	30	---			<1.4		2.95		
06	3.1	30	---			<1.5		2.95		
07	4.9	30	240			1.8		3.25		
08	6.7	30	240			2.4		3.30		
09	250	7.7	31	230		2.9		3.25		
10	285	8.6	31	220	4.5	3.1	3.4	3.00		
11	295	9.4	30	205		3.3	3.7	2.90		
12	305	9.7	30	210		3.4	3.8	2.85		
13	300	10.1	30	(200)		3.5	3.9	2.85		
14	300	10.5	29	220	4.0	3.4	3.0	2.85		
15	295	10.6	30	220		3.4	3.6	2.90		
16	280	10.2	30	225		3.2	3.3	2.95		
17	265	9.4	30	235		2.9	3.0	3.00		
18	250	9.2	30	240		2.4	2.4	3.15		
19	8.0	30	230			<1.8	<1.0	3.20		
20	6.5	30	225			<1.7		3.20		
21	5.4	30	---			<1.7		3.10		
22	4.7	30	---			<1.6		3.15		
23	4.0	30	---			<1.6		3.10		

Time: 30.0°E.

Sweep: 1.0 Mc to 17.0 Mc in 7 seconds.

Table 33

De Bilt, Holland (52.1° N, 5.2° E)								February 1961		
Time	h°F2	foF2-Count	h°F	foF1	h'E	foE	foEs	(MC3000)F2		
00	3.2	28	(300)					2.75		
01	3.2	28	(300)					2.80		
02	3.0	28	(300)					2.00		
03	2.7	28	(300)					2.00		
04	2.5	27	(300)					2.90		
05	2.3	28	<300					3.05		
06	2.4	28	<290					3.05		
07	4.4	28	235			---	1.9	3.20		
08	(230)	6.0	27	230		---	2.0	3.35		
09	230	6.8	26	225		120	2.3	3.30		
10	240	7.4	28	220	3.0	119	2.7	3.35		
11	245	7.8	28	220		120	2.9	3.30		
12	240	8.1	20	220	3.9	120	2.9	3.30		
13	245	8.0	28	215		120	2.8	3.30		
14	240	0.0	28	230		121	2.6	3.30		
15	230	7.7	27	230		127	2.3	3.30		
16	---	7.0	24	220		---	2.0	3.30		
17	6.4	28	225			---	1.9	3.20		
18	5.5	28	230					3.15		
19	4.8	28	240					3.05		
20	4.1	28	260					3.00		
21	3.7	27	200					2.90		
22	3.4	28	(290)					2.85		
23	3.3	28	<300					2.05		

Time: 0.0°.

Sweep: 1.0 Mc to 18.0 Mc in 40 seconds.

Table 35

Talara, Peru (4.6° S, 81.3° W)								February 1961		
Time	h°F2	foF2-Count	h°F	foF1	h'E	foE	foEs	(MC3000)F2		
00	9.8	18	230					4.3	3.15	
01	8.5	21	220					4.0	3.25	
02	6.25	22	220					3.7	3.40	
03	4.6	21	225					3.6	3.40	
04	3.4	21	240					2.8	3.20	
05	2.55	20	(250)					2.2	3.25	
06	2.5	20	(260)					2.2	3.20	
07	6.3	23	250	125	2.10	2.8		3.30		
08	8.6	25	235	115	2.75	3.3		3.10		
09	9.85	24	220	111	3.20	3.4		2.90		
10	10.65	26	210	111	3.50	4.4		2.72		
11	(325)	10.95	26	200	4.8	111	3.70	5.5	2.55	
12	(320)	11.4	26	200	(5.0)	111	3.80	4.5	2.42	
13	(335)	11.6	27	200	5.0	111	3.80	4.4	2.25	
14	<320	11.8	27	200	(5.0)	111	3.70	4.5	2.42	
15	12.0	27	200	109	3.58	4.5		2.58		
16	12.0	27	(210)	111	3.35	4.5		2.68		
17	12.2	27	<230	115	2.82	3.8		2.65		
18	11.9	27	250	<125	2.25	4.0		2.70		
19	12.05	26	260			3.1		2.90		
20	11.8	26	280			2.9		2.80		
21	>11.7	23	260			1.9		2.95		
22	11.6	15	245			3.2		3.10		
23	11.25	16	225			4.0		3.15		

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 32

Christchurch, New Zealand (43.6° S, 172.8° E)								March 1961		
Time	h°F2	foF2-Count	h°F	foF1	h'E	foE	foEs	(MC3000)F2		
00		(5.4)	19	270					<1.7	(2.65)
01		(5.2)	20	(270)					<1.7	(2.70)
02		(4.9)	24	260					<1.7	(2.70)
03		(4.6)	26	260					<1.8	(2.70)
04		(4.0)	24	260					<1.7	2.85
05		3.4	24	(260)					<1.7	2.80
06		3.4	21	260					<1.7	2.90
07	---	(4.8)	26	240				115	1.8	(3.15)
08	---	5.7	26	240				105	2.5	3.20
09	300	6.4	27	220				105	2.9	3.15
10	280	6.8	26	210				105	3.2	3.10
11	300	7.2	28	200				105	3.6	3.10
12	280	(7.4)	28	200				105	3.3	3.05
13	(7.3)	25	230					105	2.7	3.05
14	300	7.4	27	210				110	2.2	(3.10)
15	280	7.8	27	210				110	1.9	(2.75)
16	(7.2)	18	240					105	2.3	(2.75)
17	(6.8)	22	260					105	2.0	(2.80)
18	(6.2)	15	260					110	2.2	(2.70)
19	(5.5)	17	270					110	2.6	(2.65)

Time: 180.0°E.

Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 34

Dourbes, Belgium (50.1° N, 4.6° E)								February 1961		
Time	h°F2	foF2-Count	h°F	foF1	h'E	foE	foEs	(MC3000)F2		
00		3.4	25	280					<1.1	2.85
01		3.3	25	275					1.2	2.80
02		3.4	26	260					2.85	
03		3.2	26	270					2.85	
04		2.6	25	260					1.1	2.95
05		2.5	24	250					1.1	3.05
06		2.5	26	250					1.1	3.35
07	---	4.5	24	235				110	1.5	3.55
08	---	6.3	25	225				110	1.9	3.55
09	---	7.0	26	220				113	2.45	3.50
10	240	7.4	23	220				113	2.70	3.50
11	245	7.9	25	220				113	2.80	3.40
12	250	8.2	26	220				115	2.85	3.35
13	255	0.0	25	220				113	2.80	3.35
14	(255)	0.1	26	230				115	2.60	3.30
15	---	0.0	23	230				115	2.35	3.40
16	7.3	25	225					126	1.95	3.55
17	6.2	26	220					141	1.40	3.30
18	5.6	26	220						1.3	3.20
19	5.0	24	230						1.2	3.20
20	3.9	24	250						1.5	3.05
21	3.6	24	260						1.5	2.95
22	3.5	25	280						1.5	2.85
23	3.5	25	280						1.4	2.90

Time: 180.0°E.

Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 36

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Table 37

Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	January 1961	
								(MC3000)F2	
00	3.5	31	270			1.8	3.10		
01	3.9	31	240			3.30			
02	3.8	31	225			1.8	3.40		
03	3.0	30	230			1.9	3.35		
04	2.6	30	270			2.4	2.90		
05	2.6	29	300			1.8	2.90		
06	2.7	29	310				2.90		
07	3.7	31	260			2.0	3.10		
08	7.0	31	225	121	2,20	2.5	3.50		
09	8.8	30	220	106	2,80	3.0	3.40		
10	9.8	31	210	103	3.10	3.6	3.40		
11	9.5	30	200	102	3.40	3.6	3.30		
12	9.9	30	200	103	3.60	4.0	3.10		
13	10.4	30	200	103	3.60	4.0	3.05		
14	10.8	31	230	101	3.60	3.9	3.10		
15	10.2	31	225	101	3.40	4.0	3.20		
16	9.6	31	230	101	3.10	4.3	3.20		
17	9.2	31	230	103	2.50	4.0	3.30		
18	8.4	30	210	---	---	3.5	3.50		
19	5.0	30	200	---	---	3.0	3.40		
20	4.0	27	230	---	---	2.9	3.20		
21	4.0	29	250	---	---	2.4	3.20		
22	3.8	30	240	---	---	2.5	3.15		
23	3.5	31	260	---	---	3.10			

Time: 90.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 18 seconds.

Table 39

Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	December 1960	
								(MC3000)F2	
00	>2.3	16				(2.55)			
01	>2.2	19				2.60			
02	2.2	24				2.50			
03	2.3	25				2.55			
04	2.3	25				2.65			
05	>2.2	27				2.75			
06	>2.3	26				(2.85)			
07	>2.2	25				(2.80)			
08	(3.1)	31				(3.00)			
09	5.3	31				3.00			
10	6.9	30				3.20			
11	8.3	30				3.20			
12	8.8	30				3.20			
13	8.8	30				3.20			
14	9.0	31				3.20			
15	8.3	31				3.20			
16	7.3	31				3.20			
17	5.5	29				3.20			
18	4.0	28				3.10			
19	3.0	23				2.90			
20	2.9	18				2.85			
21	>2.4	15				(2.80)			
22	(2.3)	15				(2.60)			
23	(2.3)	13				(2.55)			

Time: 0.0°.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 41

Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	March 1960	
								(MC3000)F2	
00	4.5	31	295			<1.3	2.60		
01	4.4	31	300			<1.2	2.60		
02	4.1	31	295				2.60		
03	3.9	31	295				2.60		
04	3.7	31	280			---	2.65		
05	3.6	31	275			1.20	2.80		
06	4.9	31	255			1.65	3.00		
07	6.4	31	240			2.30	3.10		
08	(250)	7.7	31	235	---	2.60	3.05		
09	260	8.9	30	225	(4.5)	3.00	3.05		
10	260	9.7	31	220	(4.4)	3.10	3.1		
11	260	10.3	31	220	(4.2)	3.10	3.00		
12	270	10.5	31	220	4.6	3.20	3.00		
13	255	10.7	31	220	---	3.10	2.95		
14	250	10.5	31	230	---	3.00	3.00		
15	(250)	10.3	31	235	---	2.80	3.05		
16	9.6	31	235			2.40	3.10		
17	9.0	31	230			1.90	3.05		
18	8.4	31	230			1.30	3.00		
19	7.6	31	235		E	<1.2	2.95		
20	6.6	31	240		---	<1.2	2.90		
21	5.8	30	250		---	<1.2	2.80		
22	5.2	30	270		---	<1.3	2.70		
23	4.8	30	290		---	<1.3	2.70		

Time: 30.0°E.

Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 37

Table 38

Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	January 1961	
								(MC3000)F2	
00			7.4	10	235			4.3	3.30
01			6.7	19	235			4.0	3.30
02			5.05	20	245			3.4	3.22
03			4.2	19	250			3.6	3.35
04			3.6	19	250			2.1	3.35
05			3.4	20	(250)			3.0	3.30
06			3.1	22	<275			3.6	2.95
07			6.7	22	255			3.4	3.18
08			9.3	27	230			4.5	3.10
09			10.5	30	215			4.4	2.90
10			10.7	31	200			3.58	2.68
11			10.95	30	200			3.75	2.48
12			360	11.35	30	195		109	2.40
13			(330)	11.5	30	200		110	2.40
14			(340)	11.6	29	200		109	2.50
15			(325)	11.8	29	(205)		109	2.60
16			12.0	29	<225			3.25	2.70
17			11.7	29	240			2.90	2.70
18			11.9	29	255			125	2.75
19			12.0	29	265			2.8	2.90
20			>11.9	29	270			1.8	3.02
21			>11.5	25	260				3.10
22			10.6	17	<245			2.4	(3.25)
23			8.8	15	235			3.5	3.10

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 39

Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	March 1960	
								(MC3000)F2	
00			(4.45)	18					(2.80)
01			(3.75)	16					(2.72)
02			(4.0)	13					(2.85)
03			(3.6)	17					(2.78)
04			(3.3)	11					----
05			(3.3)	8					2.5
06			(3.5)	13					----
07			(4.1)	12					(2.85)
08			(5.0)	11					(2.98)
09			(5.5)	9					(3.00)
10			(6.4)	15					(2.90)
11			(7.65)	16					2.80
12			(7.3)	18					(2.90)
13			(6.7)	17					(2.90)
14			(7.0)	16					(2.90)
15			(6.5)	19					(3.00)
16			(6.5)	22					(3.02)
17			(6.4)	24					(3.00)
18			(6.2)	23					(3.02)
19			(5.5)	19					(2.90)
20			(5.6)	18					(2.90)
21			(5.6)	20					(2.82)
22			(5.2)	19					(2.82)
23			(4.4)	18					(2.75)

Time: 45.0°W.

Sweep: 1.6 Mc to 20.0 Mc in 18 seconds.

Table 41

Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	March 1960	

Table 43

Dourbes, Belgium (50.1° N, 4.6° E)								March 1960	
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00	5.0	29	300			<1.2		2.65	
01	4.8	30	290					2.65	
02	4.6	27	280					2.65	
03	4.4	30	300			<1.1		2.70	
04	4.1	30	300			<1.3		2.70	
05	3.7	30	280			<1.6		2.80	
06	---	4.6	29	265		(121) <1.60	<1.6	3.00	
07	---	6.2	29	240	----	113 2.20		3.25	
08	---	7.5	29	230	----	100 2.70		3.10	
09	(330)	8.4	29	230	----	107 3.00		3.05	
10	335	9.2	29	220	4.60	107 3.10		3.05	
11	(330)	9.2	28	215	----	107 3.25		3.05	
12	(310)	9.8	29	220	4.70	107 3.25		3.05	
13	---	9.9	29	220		(109) 3.25		3.05	
14	---	9.8	28	230		109 3.15		3.05	
15	---	9.4	28	230		111 3.00		3.05	
16	---	9.4	31	240		111 2.60		3.05	
17	---	9.4	31	240		<119 2.05		3.05	
18	8.6	30	240		----	<1.60	<1.6	3.05	
19	7.8	28	235				<1.6	2.95	
20	6.8	29	235				<1.6	3.00	
21	5.8	29	250				<1.6	2.85	
22	5.3	30	275				<1.6	2.75	
23	5.2	29	295				<1.6	2.70	

Time: 0.0°.

Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 45

Ibadan, Nigeria (7.4° N, 3.9° E)								March 1960	
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00	8.8	30	240					2.90	
01	8.7	30	250					(3.00)	
02	8.7	29	250					(3.20)	
03	8.3	26	230					3.20	
04	6.6	29	230					3.30	
05	5.4	29	220					3.40	
06	6.3	28	250		1.70			3.15	
07	9.7	30	250		2.70			3.25	
08	11.5	30	230		3.20	6.2		2.95	
09	12.6	29	220		3.60	6.4		2.55	
10	12.4	30	210		(3.90)	8.8		2.40	
11	11.7	30	205		(4.05)	8.4		2.35	
12	11.8	30	200		(4.10)	8.6		2.35	
13	11.6	31	200		4.00	8.6		2.40	
14	11.7	30	200		3.80	8.6		2.35	
15	11.9	29	205		3.55	8.5		2.30	
16	11.7	31	220		3.20	8.6		2.30	
17	(11.6)	31	250		2.60	6.3	<2.35		
18	>10.8	29	300		1.50		<2.35		
19	>9.5	29	405				2.10		
20	9.0	28	405				(2.20)		
21	9.0	29	345				(2.50)		
22	9.1	29	275				(2.75)		
23	9.1	30	250				(3.00)		

Time: 0.0°.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 47

Brisbane, Australia (27.5° S, 152.9° E)								March 1960	
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00	7.2	28	290					2.80	
01	7.1	27	280					2.80	
02	7.0	28	270					2.75	
03	6.2	26	270					2.75	
04	6.0	27	290					2.65	
05	6.0	24	290		<2.00			2.70	
06	7.0	26	250		----			3.00	
07	8.7	26	240		2.70			3.15	
08	9.5	27	230		3.05	3.5		3.10	
09	10.5	28	220		3.40	4.0		3.05	
10	11.1	27	215		3.60	4.2		2.95	
11	11.8	29	210		3.70	4.2		2.90	
12	11.8	28	210		3.80	4.3		2.85	
13	11.8	29	220		3.80	4.0		2.85	
14	11.9	30	220		3.70	4.0		2.85	
15	11.8	30	230		3.50	3.7		2.90	
16	11.4	30	240		3.00	3.5		2.90	
17	11.0	30	240		2.50	3.4		2.95	
18	9.9	30	240		2.05			2.95	
19	8.5	30	240		<1.60			2.80	
20	8.1	29	260		2.4			2.70	
21	7.7	29	290					2.70	
22	(7.7)	27	290					2.75	
23	(7.4)	28	280					2.75	

Time: 150.0°.

Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 44

Pruhonice, Czechoslovakia (50.0° N, 14.6° E)								March 1960	
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00			5.0		30	290			
01			4.8		30	280			
02			4.6		30	275			
03			4.4		30	290			
04			4.1		28	275			
05			4.2		30	255			
06			6.1		30	240	---	110	2.1
07			7.6		30	220	---	100	2.6
08			325		29	215	4.4	100	3.0
09			325		29	210	4.6	100	3.2
10			275		29	200	4.4	100	3.2
11			270		30	205	5.0	100	3.4
12			260		28	210	4.7	100	3.4
13			260		29	210	4.5	100	3.2
14			260		29	210	4.5	100	3.2
15			10.0		30	225	100	100	2.9
16			9.4		29	225	105	105	2.3
17			9.2		26	225	---	---	---
18			8.4		28	220	---	---	---
19			7.0		25	230	---	---	---
20			6.2		27	240	---	---	---
21			5.4		28	255	---	---	---
22			5.2		27	280	---	---	---
23			5.1		27	280	---	---	---

Time: 0.0°.

Sweep: 1.0 Mc to 18.0 Mc.

Table 46

La Paz, Bolivia (16.5° S, 68.1° W)								March 1960	
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2	
00			>11.35		14	240			4.5 (2.85)
01			12.9		12	220			4.1 3.20
02			>10.95		16	200			3.20
03			7.3		18	200			3.30
04			5.8		15	220			3.20
05			4.7		16	230			3.00
06			4.7		19	240			2.5 3.10
07			7.4		23	240	(121) 2.10	4.0	3.20
08			10.8		23	230	110 2.85	4.6	3.22
09			12.4		25	220	101 (3.35)	5.0	3.05
10			(13.6)		24	210	104 (3.70)	7.0	(2.75)
11			14.3		24	205	---	(3.95)	7.2 2.50
12			13.9		23	200	---	(4.00)	7.5 2.48
13			(12.4)		26	200	---	(4.00)	7.5 (2.40)
14			(12.4)		25	200	---	(3.95)	7.2 (2.35)
15			12.55		26	200	(101) (3.70)	7.4	2.40
16			>12.9		26	205	---	(3.50)	7.1 (2.40)
17			(13.1)		28	230	---	(3.00)	6.0 (2.40)
18			(12.1)		28	250	(113) (2.40)	5.6	(2.45)
19			11.1		28	290	---	0	(2.40)
20			(9.5)		21	350	---	0	(2.20)
21			(9.5)		13	315	---	0	(2.45)
22			>9.25		12	300	---	1.8 (2.70)	
23			(10.2)		11	255	---	3.2 (2.80)	

Time: 60.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 48

Mundaring, W. Australia (32.0° S, 116.2° E)								March 1960	
Time	h'F2</th								

Table 49

Concepcion, Chile (36.6° S, 73.0° W)								March 1960			
Time	h°F2	foF2-Count	h°F	foF1	h°E	foE	foEs	(M3000)F2			
00	8.95	30	290			1.8		2.75			
01	8.4	29	295			2.4		2.75			
02	8.5	30	280			2.2		2.85			
03	8.2	29	250			2.2		3.05			
04	7.0	30	220			2.4		3.20			
05	5.55	30	235			2.0		2.75			
06	6.7	29	250	<159	1.75			3.00			
07	9.1	29	230	111	2.60			3.30			
08	10.5	31	230	109	3.10	3.2		3.25			
09	11.7	31	220	109	3.40	3.6		3.15			
10	11.95	30	220	107	3.60	4.0		3.05			
11	12.75	30	(210)	109	3.70	4.1		3.00			
12	13.5	31	215	109	3.70	4.3		3.00			
13	(300)	14.1	31	<230	109	3.70	4.4	3.00			
14	(290)	14.3	31	<240	109	3.55	4.4	3.00			
15	(285)	14.3	31	240	109	3.32	4.1	3.00			
16	(280)	14.0	31	240	109	3.00	3.5	3.05			
17	(270)	14.1	31	250	117	2.50	3.0	3.10			
18	13.95	30	250	(131)	1.95	3.6		3.15			
19	11.5	31	240			3.8		3.10			
20	10.2	29	240			2.5		2.85			
21	9.4	29	260			2.3		2.70			
22	9.2	29	290			2.4		2.75			
23	9.1	31	290			1.8		2.75			

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 51

Lindau/Harz, Germany (51.6° N, 10.1° E)								February 1960			
Time	h°F2	foF2-Count	h°F	foF1	h°E	foE	foEs	(M3000)F2			
00	4.73	29	280					2.62			
01	4.70	29	278					2.62			
02	4.22	29	291					2.56			
03	4.24	26	294					2.50			
04	4.12	26	293					2.62			
05	3.65	23	275					2.70			
06	3.52	28	254					2.80			
07	3.90	29	252	---	E			2.80			
08	7.05	29	229	---	1.90	2.3		3.18			
09	9.25	29	223	110	2.39	3.2		3.22			
10	10.60	28	223	110	2.77	3.5		3.12			
11	11.68	28	221	107	3.02	3.6		3.10			
12	12.28	28	222	106	3.16			3.05			
13	12.60	29	222	107	3.12	2.9		3.03			
14	12.20	29	230	109	3.05			3.00			
15	12.00	27	230	111	2.87	2.8		3.03			
16	11.30	27	226	---	2.54	2.7		3.10			
17	10.40	25	223	---	2.00	3.1		3.12			
18	9.65	29	220	---	E	2.3		3.04			
19	8.22	29	222					3.02			
20	6.90	29	224					2.93			
21	5.95	29	242					2.80			
22	5.35	29	255					2.73			
23	4.77	29	270					2.67			

Time: 15.0°E.

Sweep: 1.0 Mc to 16.0 Mc in 4 minutes.

Table 53

Wakkanai, Japan (45.4° N, 141.7° E)								January 1960			
Time	h°F2	foF2-Count	h°F	foF1	h°E	foE	foEs	(M3000)F2			
00	3.6	30	325					2.70			
01	3.5	30	320					2.65			
02	3.4	30	320					2.70			
03	3.4	31	295					2.70			
04	3.4	31	300					2.65			
05	3.4	31	300					2.75			
06	3.3	31	275					2.90			
07	5.6	31	250	---				3.00			
08	9.8	30	230	2.25				3.25			
09	12.2	30	230	2.75				3.20			
10	12.7	29	230	3.05				3.20			
11	12.5	29	230	3.15				3.15			
12	11.3	29	225	3.20				3.10			
13	11.2	30	230	3.05				3.10			
14	10.8	30	235	2.80				3.05			
15	9.8	30	225	2.40				3.05			
16	9.0	31	225	2.00				3.10			
17	8.0	31	225					3.05			
18	6.1	31	230					3.10			
19	4.7	31	240					3.00			
20	3.8	31	270					2.85			
21	3.8	30	300					2.75			
22	3.8	30	300					2.75			
23	3.8	30	315					2.70			

Time: 135.0°E.

Sweep: 1.0 Mc to 20.7 Mc in 1 minute.

Table 50

Byrd Station (80.0° S, 120.0° W)								March 1960			
Time	h°F2	foF2-Count	h°F	foF1	h°E	foE	foEs	(M3000)F2			
00			(5.9)	13	(340)				3.3		(2.60)
01			(5.95)	16	(335)				3.2		(2.65)
02			(5.8)	17	<345				3.8		(2.65)
03			(5.9)	15	<335				3.5		(2.70)
04			(5.0)	18	(285)				3.7		(2.90)
05			(5.15)	20	270						(2.95)
06			5.2	26	270						3.00
07			5.7	26	260						3.05
08			6.3	28	<255						3.08
09			6.7	29	(260)						3.05
10			6.9	31	250						3.05
11	(370)	7.5	29	250	(3.9)	<121	(2.48)				3.10
12	310	(7.75)	28	250	---	<123	(2.30)				(3.00)
13	(350)	(7.9)	27	250	---	(119)	(2.35)				3.08
14	(545)	(7.8)	26	250	---	(126)	2.35				(3.10)
15	(420)	(7.7)	24	270	---	(125)	2.30				(2.95)
16	---	(6.0)	24	290	---	(118)	(2.40)				(2.90)
17	---	(5.7)	18	280	---	(135)	(2.75)				(2.85)
18	---	(5.7)	15	300	---	(131)	(2.50)				(2.80)
19	---	(6.0)	16	305	---	---	3.6				(2.75)
20	---	(6.2)	14	300	---	---	3.4				(2.70)
21	---	(6.4)	11	305	---	---	4.1				(2.65)
22	---	(6.1)	13	315	---	---	2.5				(2.65)
23	---	(5.8)	22	<340	---	---	3.6				(2.60)

Time: Local.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 52

Tahiti, Society Is. (17.7° S, 149.3° W)								February 1960			
Time	h°F2	foF2-Count	h°F	foF1	h°E	foE	foEs	(M3000)F2			
00			13.4	20	245	---	---				3.05
01			9.8	17	225	---	---				3.10
02			8.3	21	240	---	E				2.75
03			8.0	24	295	---	E				2.65
04			8.0	21	290	---	E	1.8			2.70
05			>8.0	22	290	---	E	2.2			2.80
06			9.0	25	275	---	E	2.6			3.00
07			10.8	23	245	---	E	3.1			3.10
08			11.5	26	235	---	E	4.0			3.10
09			12.6	22	220	---	E	4.2			2.90
10			13.8	23	225	---	E	4.5			2.70
11			14.5	21	230	---	E	4.6			2.75
12			15.5	22	220	---	E	4.6			2.75
13	(355)	16.0	24	225	---	(4.20)	4.6				2.80
14	345	16.0	26	225	---	3.95					2.80
15	360	15.8	26	230	---	3.85		</td			

Table 55

Tokyo, Japan (35.7° N, 139.5° E)							January 1960	
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2
00	4.2	27	305					2.70
01	3.8	27	315					2.70
02	3.6	26	320					2.60
03	3.4	25	<335					2.60
04	3.5	25	315					2.65
05	3.4	25	350					2.60
06	3.6	24	305					2.80
07	6.7	23	250					2.70
08	10.6	24	240					3.05
09	---	12.2	28	245				3.15
10	---	13.3	29	240				3.40
11	---	13.0	29	235				3.50
12	---	12.5	31	240				3.05
13	---	12.0	31	240				2.95
14	---	11.6	31	245				2.90
15	---	10.9	31	<250				2.95
16	(9.7)	31	240					(3.05)
17	9.2	30	245					3.05
18	(7.8)	30	245					(3.00)
19	6.4	29	240					3.10
20	4.8	30	250					2.90
21	4.6	29	<300					2.75
22	4.5	28	300					2.70
23	4.6	28	300					2.70

Time: 135.0°E.

Sweep: 1.0 Mc to 20.0 Mc in 20 seconds.

Table 57

Delhi, India (28.6° N, 77.2° E)							February 1959	
Time	*	foF2-Count	h'F	foF1	h'E	foE	fEs	(M3000)F2
00	---	>8.4	24					----
01	---	>7.5	19					----
02	---	(6.8)	7					----
03	---	(7.7)	2					----
04	(350)	>4.5	23					(2.80)
05	360	>3.7	26					(2.80)
06	340	4.7	21					2.95
07	230	8.9	17					3.35
08	260	12.2	27					3.45
09	280	13.3	27					3.30
10	300	13.8	26					3.10
11	320	14.4	25					3.00
12	340	14.2	22					2.95
13	340	14.6	24					2.85
14	360	14.1	24					2.80
15	360	13.8	26					2.80
16	(360)	>14.1	21					(2.80)
17	(320)	>13.4	25					(3.00)
18	---	>13.7	22					----
19	---	(13.3)	24					----
20	---	>13.5	19					----
21	---	>11.2	16					----
22	---	>9.2	20					----
23	(370)	>8.7	23					(2.65)

Time: 75.0°E.

Sweep: 1.5 Mc to 18.0 Mc in 5 minutes, manual operation.

* Height at 0.83 foF2.

Table 59

Calcutta, India (23.0° N, 88.6° E)							February 1959	
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	fEs	(M3000)F2
00	0	28	240					----
01	(13.0)	27	230					(3.35)
02	(11.0)	28	225					----
03	(8.5)	28	220					3.5
04	>6.0	28	250					3.5
05	(4.6)	27	250					3.3
06	5.0	28	250					3.2
07	9.0	28	250					3.3
08	0	28	250					3.3
09	0	28	250					3.3
10	(350)	0	28	250	(9.0)	100	(3.9)	----
11	(350)	0	27	250	(9.0)	100	>4.0	----
12	(400)	0	27	250	(9.0)	100	>4.0	----
13	(400)	0	24	250	(8.0)	100	4.0	----
14	(400)	0	24	250	(8.0)	100	4.0	----
15	385	0	23	250	7.6	100	3.7	----
16	(350)	0	26	240	(8.0)	100	3.5	----
17	---	0	27	250	---	100	3.0	----
18	0	27	260	---	---			>2.2
19	0	26	285	---	---			2.1
20	0	27	260	---	---			----
21	0	28	240	---	---			----
22	0	27	240	---	---			----
23	0	28	240	---	---			----

Time: 90.0°E.

Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 56

Yamagawa, Japan (31.2° N, 130.6° E)							January 1960	
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2
00			5.6		30	275		2.75
01			4.6		30	280		2.70
02			4.1		30	275		2.70
03			3.7		30	295		2.65
04			3.4		30	290		2.60
05			3.4		30	320		2.60
06			3.5		30	300		2.70
07			5.1		30	290		2.80
08			9.7		29	250		3.25
09			12.4		28	245		3.15
10			13.6		29	240		3.10
11			14.0		28	240		3.05
12			13.7		28	235		2.90
13			13.8		28	240		2.80
14			13.6		27	240		2.80
15			12.9		27	245		2.85
16			12.5		28	250		2.90
17			11.2		31	245		2.95
18			10.4		31	240		3.1
19			9.0		30	245		3.00
20			(8.4)		29	240		2.2
21			7.5		28	240		2.8
22			6.4		29	250		2.70
23			5.8		29	270		2.80

Time: 135.0°E.

Sweep: 1.0 Mc to 20.3 Mc in 30 seconds.

Table 58

Ahmedabad, India (23.0° N, 72.6° E)							February 1959	
Time	*	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		13.0	25	250				2.80
01		11.5	26	250				2.95
02		10.1	25	245				2.95
03		8.6	26	240				3.00
04		6.6	26	225				2.85
05		5.0	26	240				2.90
06		4.2	25	270				2.85
07		8.2	24	265				2.95
08		12.4	24	250				3.05
09	(250)	13.8	23	240				2.95
10	(290)	14.4	26	230				2.80
11	300	15.2	26	220				2.65
12	350	>15.3	24	220				2.55
13	350	15.8	25	225				2.50
14	350	16.0	25	230				2.50
15	350	15.5	27	(230)				2.50
16	350	15.6	26	(250)				<2.50
17	300	15.6	26	250				2.55
18		>16.0	27	265				2.60
19		16.7	25	280				2.55
20		>16.0	26	300				2.0
21		(17.0)	26	250				(2.75)
22		16.0	27	240				2.85
23		14.3	26	240				2.75

Time: 75.0°E.

Sweep: 1.5 Mc to 18.0 Mc in 5 minutes, automatic operation.

* Height at 0.83 foF2.

Table 60

Bombay, India (19.0° N, 72.6° E)							February 1959	
Time	*	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		>10.2	7					----
01		>9.3	12					----
02		>8.5	20					----
03	(320)	>8.3	22					(3.0)
04	(300)	>6.7	22					(3.1)
05	(290)	>6.0	22					(3.2)
06	(280)	>5.8	22					(3.3)
07		>7.4	27					(3.25)
08			0					(3.1)
09		>12.7	24					----
10	(320)	>14.2	22					(3.0)
11	(360)	>14.5	22					(2.9)
12	(380)	>14.6	22					<2.7
13		>14.8	6					----
14		>14.8	24					----
15		>14.7	25					----
16		>14.5	22					----
17		>13.5	25					----
18		>13.9	27					----
19		>13.5	26					----
20			0					----
21		>11.8	8					----
22								

Table 61

Madras, India (13.1° N, 80.3° E)		February 1959						
Time	*	foF2-Count	h'F	foF1	h'E	foE	fEs	(M3000)F2
00	---	12.0	28					
01	---	11.8	28					
02	---	9.8	22					
03	---	8.4	25					
04	(310)	7.3	24					
05	280	5.8	20					(3.30)
06	300	6.6	28					3.20
07	320	10.9	25					2.95
08	360	13.2	27					2.75
09	400	13.8	28					2.55
10	460	13.3	23					2.40
11	480	12.9	21					2.30
12	520	12.4	24					2.25
13	520	12.8	14					(2.20)
14	540	13.5	17					2.20
15	540	13.2	21					2.20
16	560	13.0	17					(2.10)
17	560	12.8	24					----
18	(620)	11.8	25					----
19	---	10.9	25					----
20	---	11.8	23					----
21	---	13.2	22					----
22	---	13.2	23					----
23	(360)	13.3	27					----

Time: 75.0°E.

Sweep: 1.5 Mc to 18.0 Mc in 5 minutes, manual operation.

* Height at 0.83 foF2.

Table 62

Tiruchy, India (10.8° N, 78.7° E)		February 1959						
Time	*	foF2-Count	h'F	foF1	h'E	foE	fEs	(M3000)F2
00	---	>10.4	4					----
01	---	>10.2	6					----
02	---	>9.5	5					----
03	---	(6.7)	3					----
04	(290)	(7.2)	9					----
05	(260)	6.0	14					(3.25)
06	200	6.8	15					(3.50)
07	300	(10.4)	26					5.7
08	360	12.4	27					3.20
09	420	>13.1	22					>9.0
10	460	13.0	25					2.50
11	480	12.9	28					>13.2
12	520	12.6	28					2.35
13	520	12.7	27					13.5
14	520	13.0	27					2.30
15	520	13.2	26					>13.5
16	(560)	12.6	10					2.25
17	---	(13.1)	2					2.20
18	---	(10.2)	28					2.10
19	---	(10.0)	12					2.0
20	---	(9.7)	4					2.0
21	---	>10.2	1					2.0
22	---	(11.4)	4					2.0
23	---	(10.8)	5					2.0

Time: 75.0°E.

Sweep: 1.5 Mc to 18.0 Mc in 5 minutes, manual operation.

* Height at 0.83 foF2.

Table 63

Kodaikanal, India (10.2° N, 77.5° E)		February 1959							
Time	*	h'F2	foF2-Count	h'F	foF1	h'E	foE	fEs	(M3000)F2
00	---	11.2	14	240					2.70
01	---	10.6	15	240					2.90
02	(9.6)	18	235						(2.90)
03	8.0	20	240						3.00
04	7.9	18	240						3.00
05	6.2	23	225						3.15
06	5.8	23	255						(2.90)
07	9.8	26	260	120	2.6	7.0			2.85
08	11.9	28	240	110	3.2	9.4			2.60
09	12.8	28	230	110	---	11.6			2.40
10	12.6	28	220	---	---	13.0			2.30
11	12.4	29	215	---	---	13.4			2.20
12	12.1	27	210	---	---	13.4			2.15
13	12.4	29	210	---	---	13.5			2.15
14	12.6	28	220	---	---	12.8			2.15
15	12.6	28	225	---	---	12.6			2.15
16	12.2	28	240	115	---	10.4			2.10
17	12.0	26	260	120	---	8.6			2.05
18	11.0	26	305						2.00
19	9.3	20	420						2.00
20	(9.7)	7	400						(2.15)
21	(10.6)	6	360						(2.30)
22	(11.4)	7	280						(2.55)
23	11.4	10	255						(2.65)

Time: 75.0°E.

Sweep: 1.0 Mc to 25.0 Mc in 27 seconds.

Table 64

Trivandrum, India (8.5° N, 77.0° E)		February 1959							
Time	*	h'F2	foF2-Count	h'F	foF1	h'E	foE	fEs	(M3000)F2
00	---	>9.4	10						----
01	---	>9.4	12						----
02	---	>9.0	14						----
03	(320)	>8.9	18						(3.00)
04	320	8.0	17						3.10
05	300	6.3	18						3.10
06	340	5.8	20						2.85
07	360	9.8	27						2.70
08	400	11.8	28						11.2
09	430	12.6	28						2.50
10	460	12.8	27						2.40
11	480	12.4	26						13.0
12	500	12.4	27						2.30
13	520	12.5	25						13.2
14	560	>12.9	20						2.20
15	560	12.5	27						12.4
16	560	12.4	28						2.15
17	560	(11.8)	25						(2.15)
18	---	>10.2	23						----
19	---	>9.0	5						----
20	---	>9.8	1						----
21	---	>9.5	3						----
22	---	>9.2	8						----
23	---	>10.0	9						----

Time: 75.0°E.

Sweep: 1.5 Mc to 18.0 Mc in 5 minutes, manual operation.

* Height at 0.83 foF2.

Table 65

Tsumeb, South W. Africa (19.2° S, 17.7° E)		February 1959							
Time	*	h'F2	foF2-Count	h'F	foF1	h'E	foE	fEs	(M3000)F2
00	---	7.63	27	250		1.5			2.75
01	---	7.00	27	242		1.6			2.75
02	6.00	26	248			1.6			2.62
03	5.48	26	278			1.7			2.64
04	5.30	26	280			2.0			2.66
05	4.81	25	268			1.8			2.72
06	6.90	27	250	128	1.86	2.3			2.90
07	9.10	27	240	110	2.91				2.96
08	10.72	27	225	105	3.38	3.6			2.83
09	11.60	27	220	105	3.72	3.7			2.70
10	---	12.01	25	215	---	3.98	4.0		2.58
11	---	12.68	26	215	---	4.15			2.54
12	(380)	12.80	26	215	6.45	4.24			2.51
13	400	13.00	26	220	6.75	4.22			2.49
14	(380)	13.00	24	218	6.65	4.10			2.49
15	---	12.68	27	230	---	3.82			2.50
16	---	12.30	27	230	---	110	3.48	3.8	2.51
17	---	11.91	26	243	110	2.96	3.7		2.56
18	---	11.80	27	260	120	2.12	2.9		2.62
19	---	11.33	25	256	---	2.7			2.69
20	---	10.85	27	252	---	2.1			2.71
21	---	9.98	26	250	---	2.5			2.72
22	---	9.25	27	254	---	1.8			2.73
23	---	8.61	27	260	---	2.1			2.75

Time: 15.0°E.

Sweep: 1.0 Mc to 16.0 Mc in 4 minutes.

Time: 165.0°W.

Sweep: 1.0 Mc to 22.0 Mc in 7 seconds.

Table 66

Rarotonga I. (21.2° S, 159.0° W)		February 1959							
Time	*	h'F2	foF2-Count	h'F	foF1	h'E	foE	fEs	(M3000)F2
00	---	(9.8)	17						2.45
01	---	8.9	22						2.40
02	---	8.0	22						2.35
03	---	8.9	27						1.4
04	---	8.4	27						1.3
05	---	8.2	26						1.5
06	---	9.6	24						

Table 67

Christchurch, New Zealand (43.6° S, 172.8° E)								February 1959		
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2		
00	(6.9)	7	<300			2.2		(2.40)		
01	(6.8)	11	<300			<1.7		(2.35)		
02	(6.0)	16	<300			<1.7		(2.30)		
03	(6.0)	18	(310)			<1.6		(2.30)		
04	5.6	18	<300			1.6		2.30		
05	5.4	22	<300			1.3		2.40		
06	5.6	17	290		120	1.8		2.55		
07	5.6	17	250	---	110	2.6	2.8	2.60		
08	(410)	6.4	19	240	4.6	110	(3.2)	3.6		
09	450	6.4	15	240	5.1	100	3.6	3.8	2.55	
10	460	7.6	16	220	5.4	105	3.8	4.0	2.55	
11	440	7.9	15	220	5.5	100	4.0	4.0	2.50	
12	440	(8.3)	13	210	5.9	100	4.1		(2.60)	
13	450	(8.4)	17	230	6.0	<105	4.1		2.50	
14	410	(9.3)	20	230	6.0	105	4.0	<2.8	(2.50)	
15	420	(8.7)	19	230	6.0	100	4.0		(2.55)	
16	420	(8.6)	16	240	6.0	105	3.7		(2.50)	
17	420	7.9	13	240	5.2	110	3.4		2.50	
18	---	(7.7)	9	250	---	105	2.9		(2.50)	
19	(8.0)	5	260			2.5		(2.65)		
20	(8.2)	6	<270			<1.9		(2.50)		
21	(7.9)	2	<270			2.9	----			
22	(7.8)	6	(290)			3.5	(2.40)			
23	(7.2)	10	<300			<2.3		(2.35)		

Time: 180.0°E.
Sweep: 1.0 Mc to 22.0 Mc in 7 seconds.

Table 69

Port Lockroy (64.8° S, 63.5° W)								February 1959		
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2		
00	9.0	26				1.5	2.40			
01	8.6	22				1.8	2.30			
02	8.4	19				1.3	<2.40			
03	7.4	20				1.6	2.30			
04	7.3	21				1.8	2.30			
05	7.2	24				2.1	2.35			
06	7.6	25				2.5	2.40			
07	7.6	26				3.1	2.50			
08	7.8	26				3.6	2.55			
09	7.8	26				4.1	2.60			
10	8.4	27				4.8	2.60			
11	8.5	27				5.0	2.70			
12	9.0	26				4.8	2.70			
13	8.6	26				4.6	2.75			
14	8.5	24				4.3	2.70			
15	8.5	25				4.0	2.80			
16	8.6	26				4.2	2.80			
17	8.5	25				3.7	2.85			
18	8.4	26				3.8	2.80			
19	8.6	27				3.0	2.80			
20	8.8	25				2.3	2.70			
21	9.0	24				1.9	2.55			
22	9.2	25				1.7	2.45			
23	9.2	25				1.2	2.45			

Time: 60.0°W.
Sweep: 0.67 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 71

Soya (Japanese Ship) (68.5° S, 37.0° E)*								February 1957		
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2		
00	---	4.8	18	390		130	2.7	3.9		
01	---	5.0	18	300	---	120	3.4	3.6		
02	(440)	5.4	19	370	---	130	3.2	3.2		
03	470	5.8	16	320	3.8	130	3.0	3.2		
04	450	6.5	16	280	4.0	120	3.2	3.4		
05	460	7.2	16	260	4.6	120	3.2	3.8		
06	430	8.3	13	240	4.6	120	3.3			
07	450	7.0	21	240	4.8	120	3.4			
08	460	7.2	20	240	5.0	120	3.4			
09	480	7.0	22	240	5.0	120	3.4			
10	460	6.8	23	240	5.0	120	3.3			
11	460	6.6	24	240	5.1	120	3.3			
12	440	6.8	27	240	5.0	120	3.2			
13	430	6.8	25	250	4.8	120	3.2			
14	400	6.6	24	250	4.3	120	3.0			
15	350	6.5	27	250	---	130	2.9			
16	(370)	6.2	25	270	---	130	2.5			
17	---	5.8	22	270	---	140	2.4			
18	---	5.4	22	290	---	140	2.4			
19	---	4.9	20	350	---	140	2.8			
20	---	4.7	17	340	---	130	2.8	3.4		
21	4.4	16	330			140	2.7	4.0		
22	4.4	15	370			130	2.5	3.7		
23	4.3	16	380			120	2.4	3.5		

Time: 0.0°.
Sweep: 1.0 Mc to 25.0 Mc in 10 or 30 seconds.
* Average of 69° and 68° S, 39° and 35° E.

Table 68

Campbell Is. (52.5° S, 169.2° E)								February 1959		
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2		
00						5.3	21			
01						5.0	19			
02						4.4	22			
03						4.1	20			
04						4.2	20			
05						4.6	25			
06						5.4	27			
07						5.6	27			
08						6.4	24			
09						6.6	26			
10						7.1	27			
11						7.4	27			
12						7.6	26			
13						7.9	28			
14						8.0	28			
15						8.0	28			
16						8.0	28			
17						8.4	27			
18						8.5	25			
19						8.5	25			
20						7.7	24			
21						7.3	25			
22						(6.8)	23			
23						5.6	23			

Time: 165.0°E.
Sweep: 1.0 Mc to 13.0 Mc in 2 minutes.

Table 70

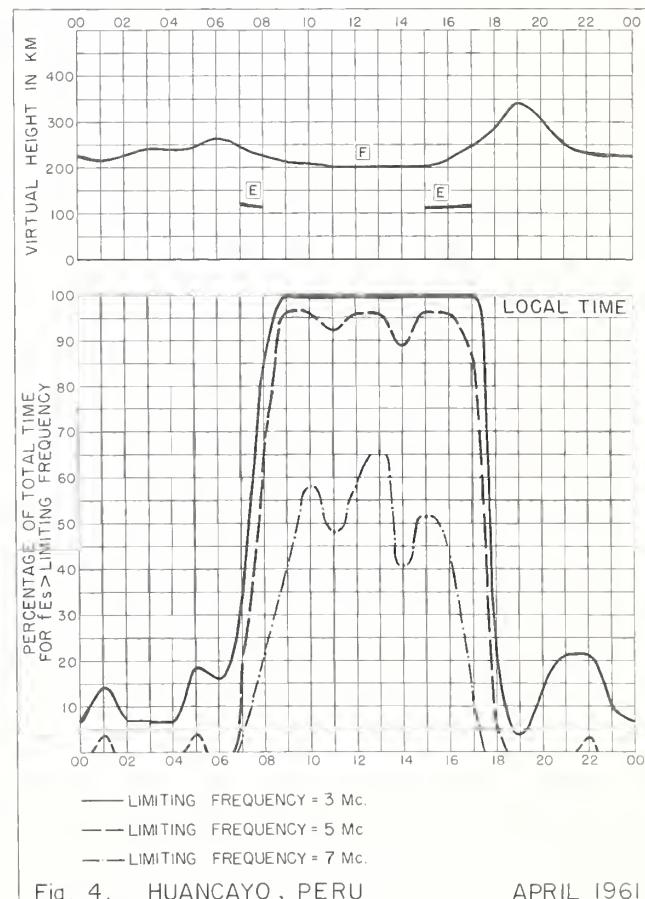
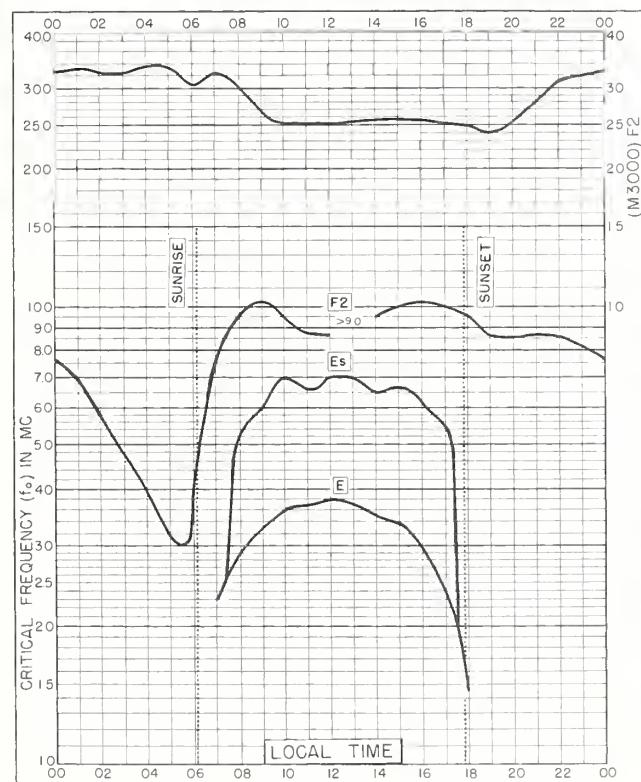
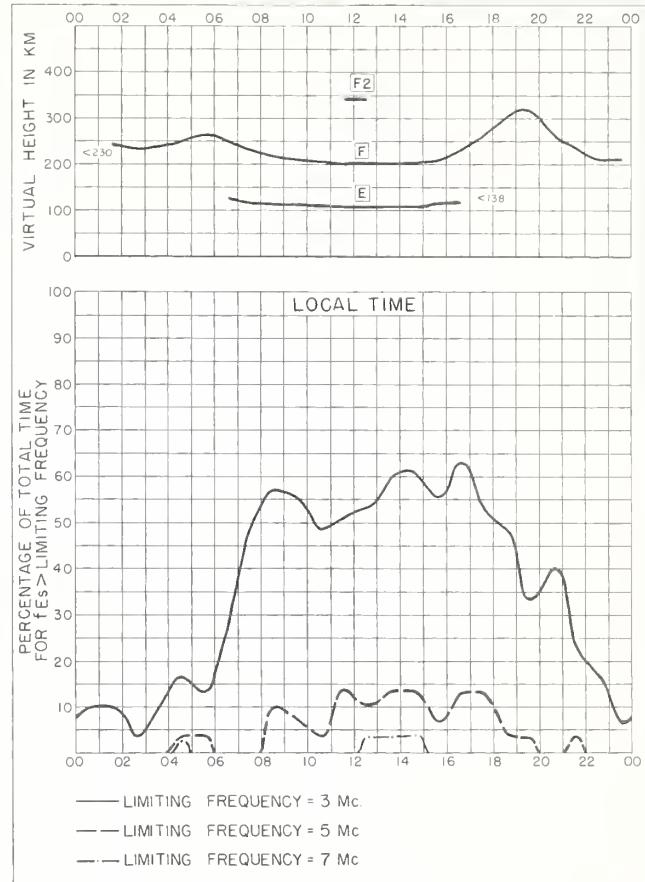
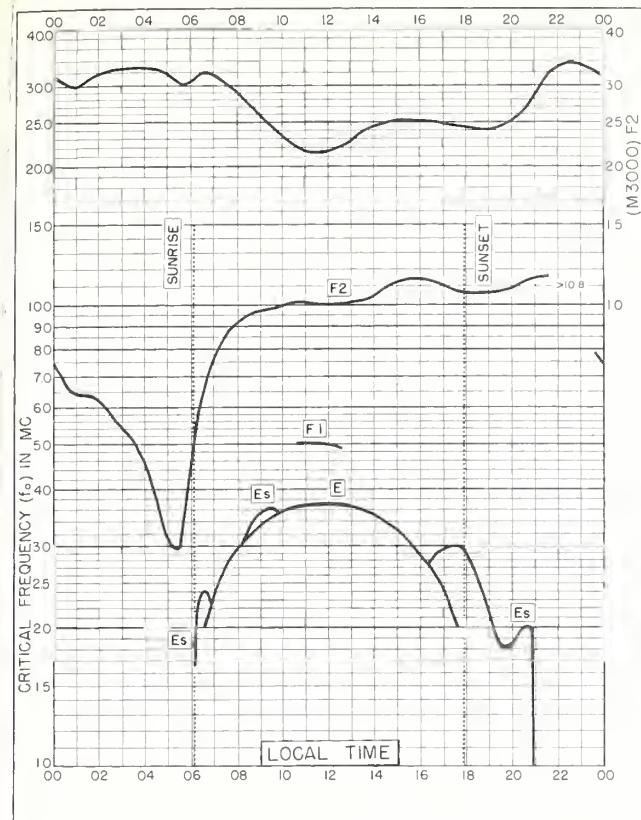
Halley Bay (75.5° S, 26.6° W)								February 1958		
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2		
00						>5.35	22	370	135	(2.05)
01						>5.60	23	380	130	(2.10)
02						>6.00	20	300	---	2.4
03	(470)					>5.70	20	350	3.70	>2.20
04						4.30	22	(330)	3.90	<2.40
05						5.40	23	290	3.85	2.5
06						500	21	265	4.10	2.70
07						485	25	255	4.30	<120
08						500	24	(250)	4.60	115
09						550	6.65	24	(250)	>3.10
10						500	6.50	22	255	4.60
11						565	20	(250)	5.00	110
12						580	6.30	19	(250)	5.00
13						550	6.40	24	(250)	5.00
14						500	6.60	26	(250)	4.90
15						>465	6.80	23	250	5.00
16	(430)					500	6.90	24	(250)	5.10
17						7.10	22	255	<4.20	115
18						7.30	20	255	4.10	115
19						7.00	22	275	---	120
20						6.80	22	285	---	130
21						>6.40	22	305	<140	(2.40)
22						(5.30)	25	<320	165	(2.20)
23						>5.00	24	325	---	2.45

Time: Local.
Sweep: 0.67 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 72

Lwiro, Belgian Congo (2.3° S, 28.8° E)								February 1955		
Time	h'F2	foF2-Count	h'F	foF1	h'E	foE	foEs	(M3000)F2		

</tbl_r



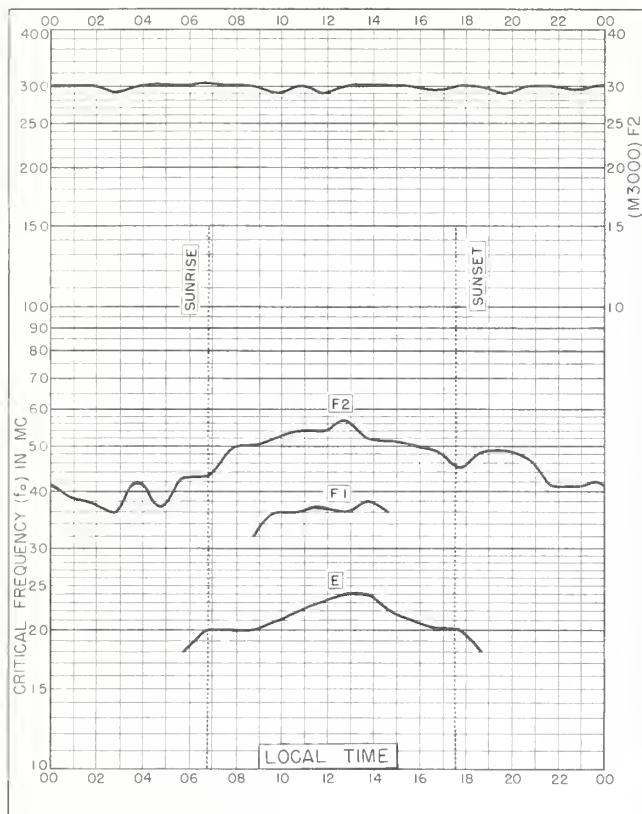


Fig. 5. RESOLUTE BAY, CANADA

74.7°N, 94.9°W

MARCH 1961

NBS 503

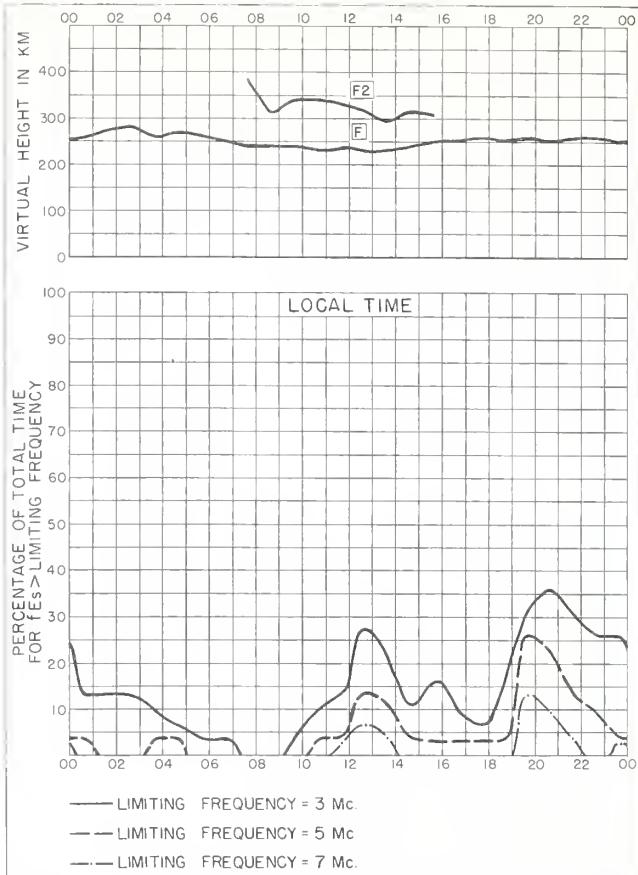


Fig. 6. RESOLUTE BAY, CANADA MARCH 1961

NBS 490

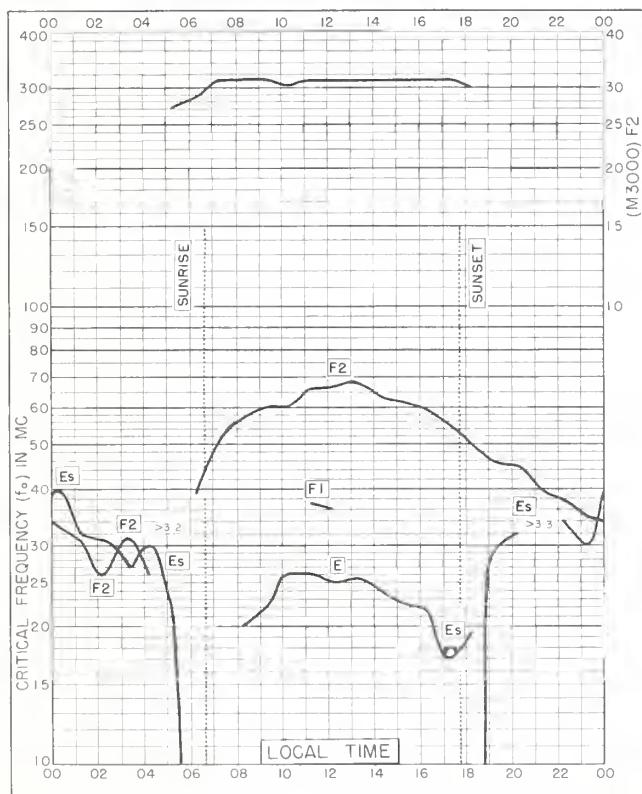


Fig. 7. TROMSO , NORWAY

69.7°N, 19.0°E

MARCH 1961

NBS 503

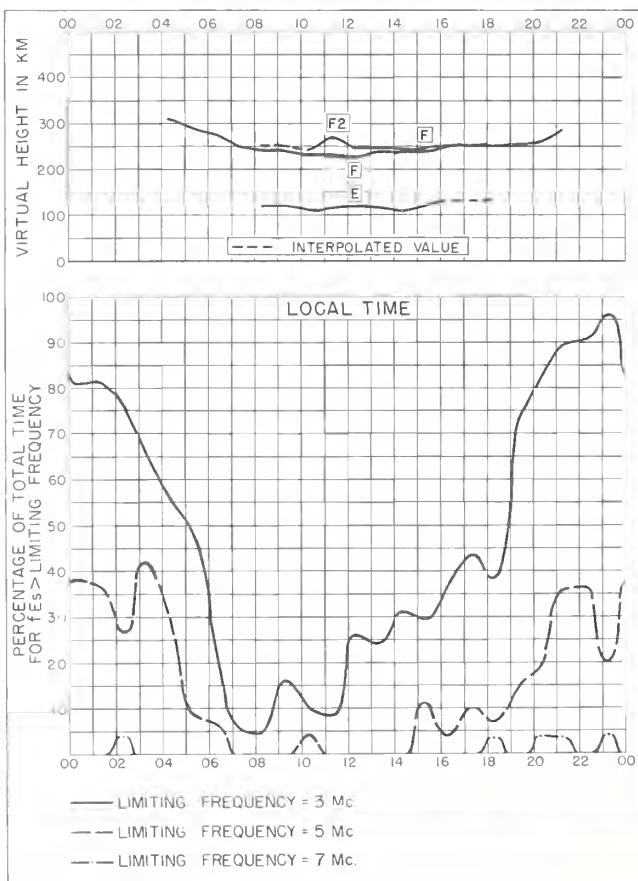
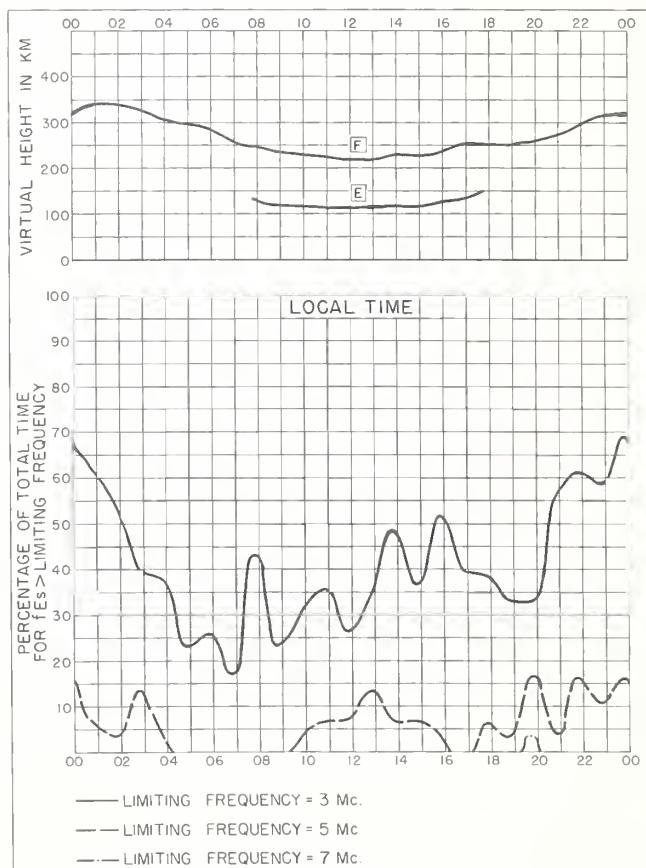
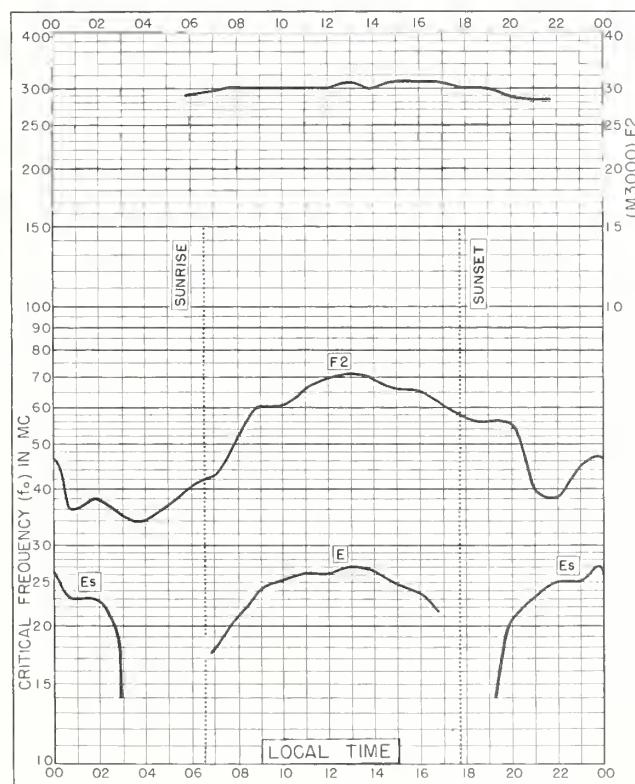
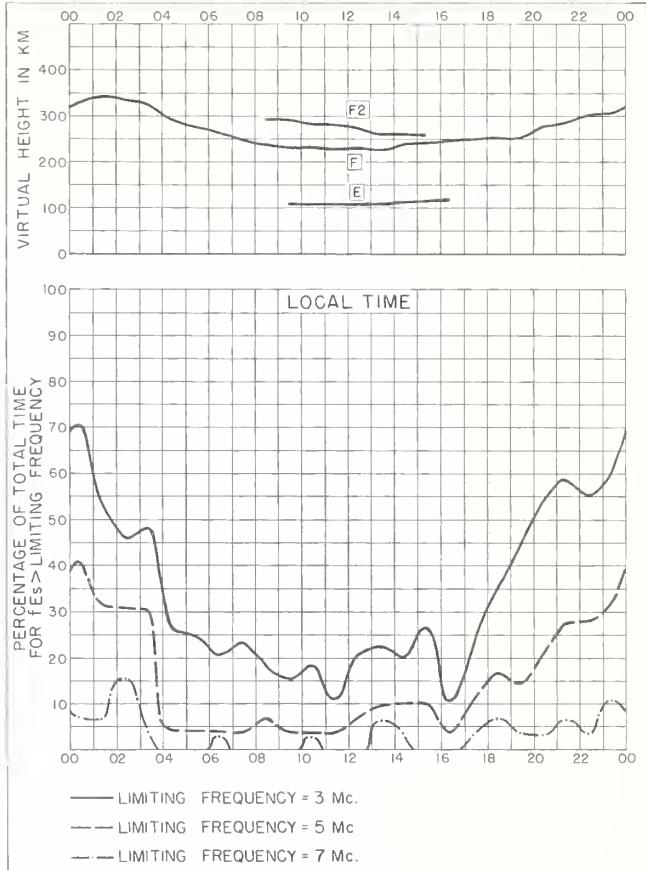
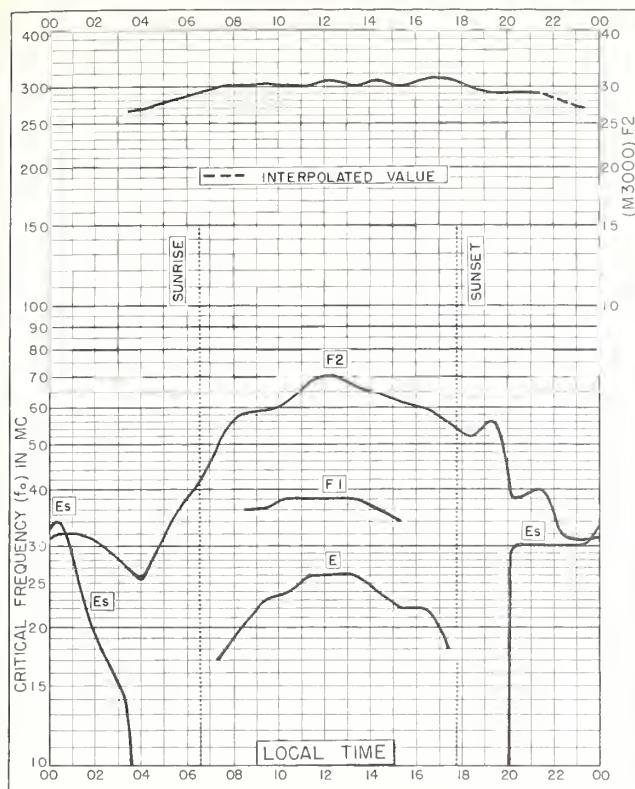


Fig. 8. TROMSO , NORWAY

MARCH 1961

NBS 490



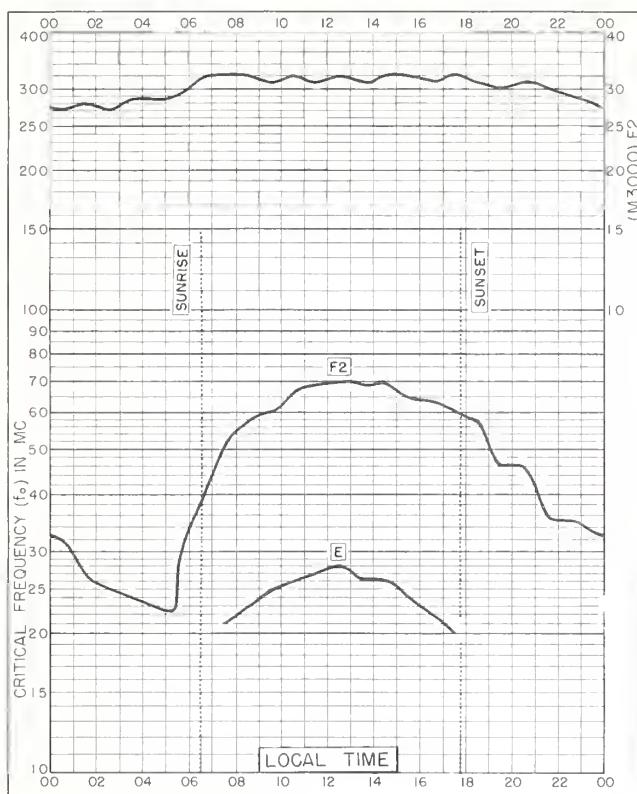


Fig. 13. LULEA, SWEDEN
65.6°N, 22.1°E MARCH 1961

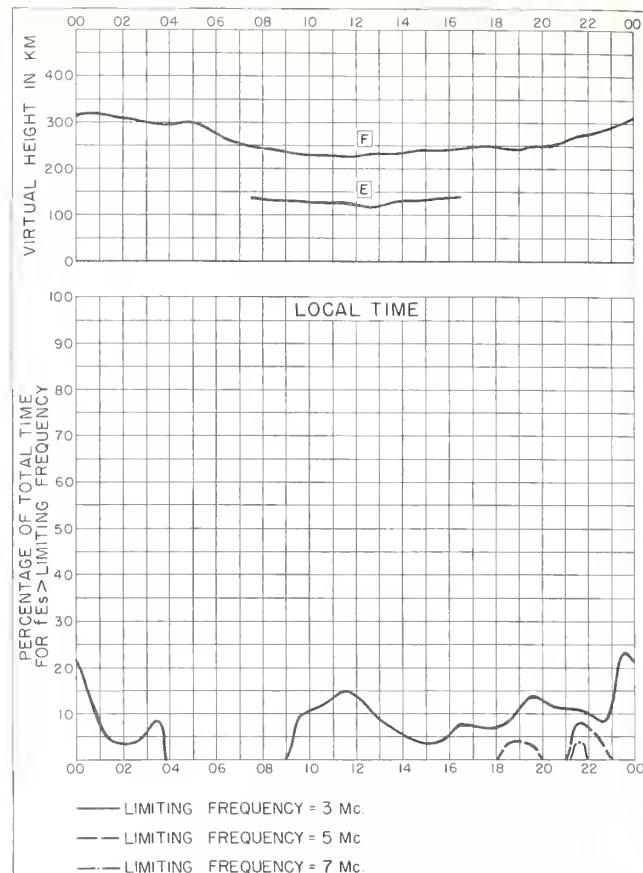


Fig. 14. LULEA, SWEDEN MARCH 1961

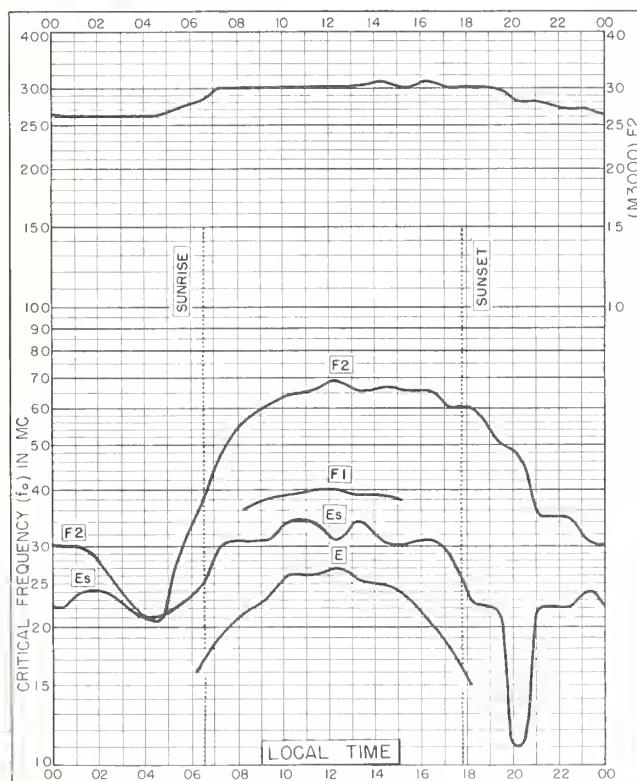


Fig. 15. LYCKSELE, SWEDEN
 64.6°N, 18.8°E MARCH 1961

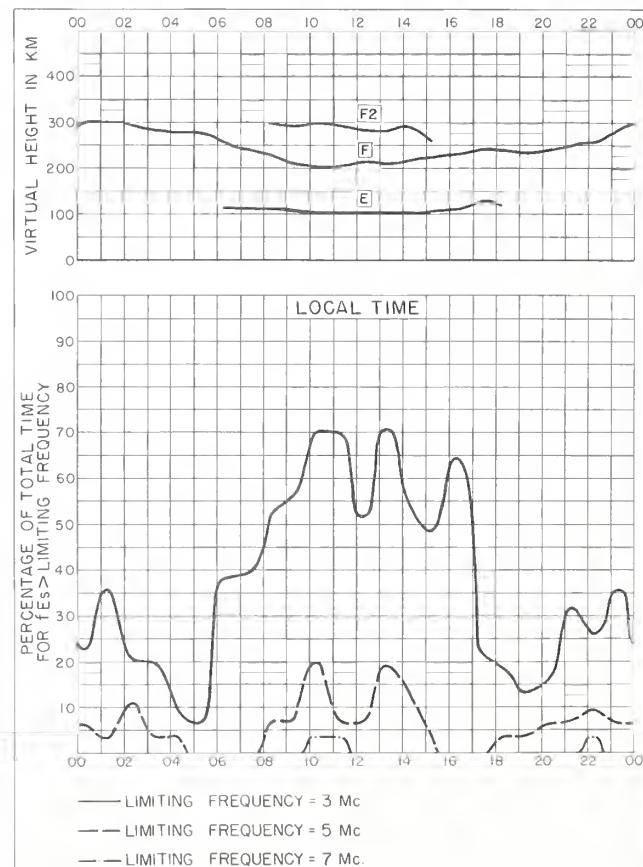
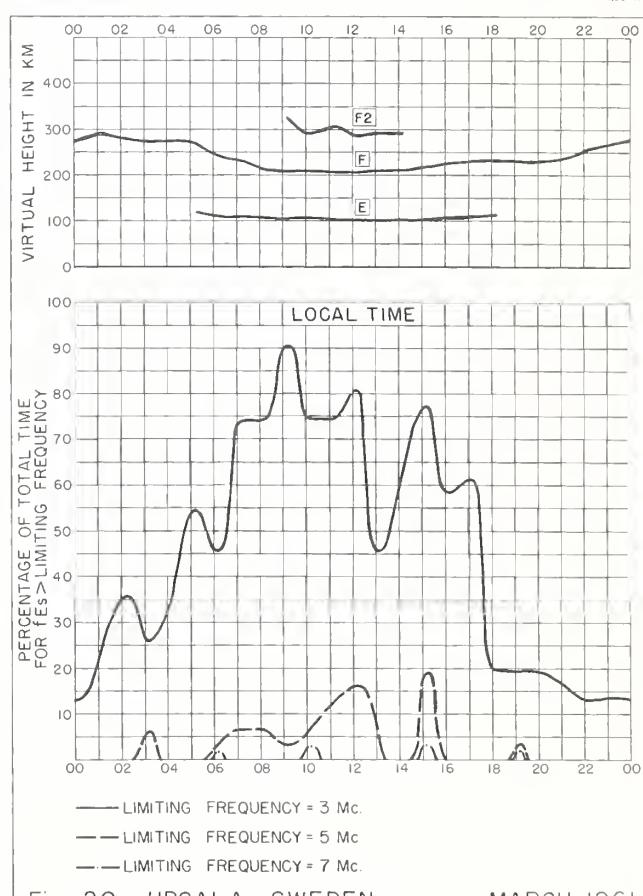
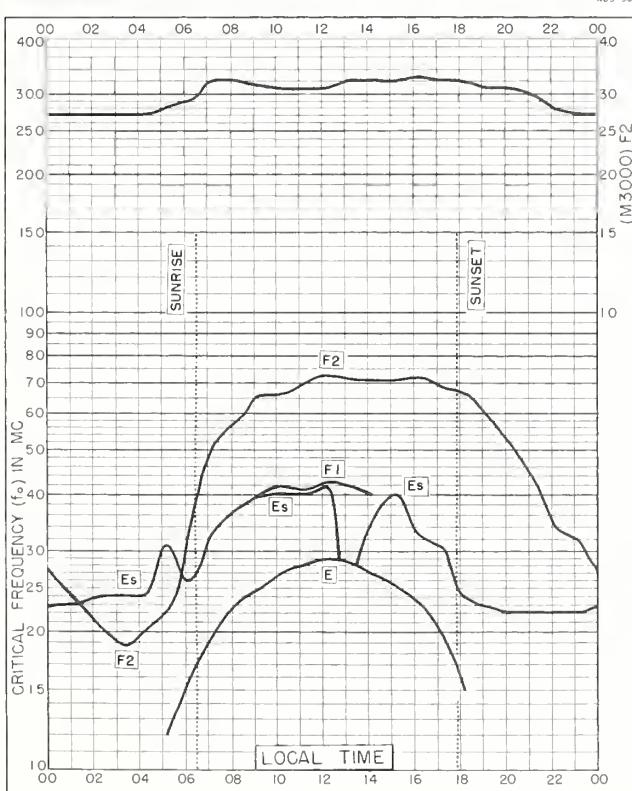
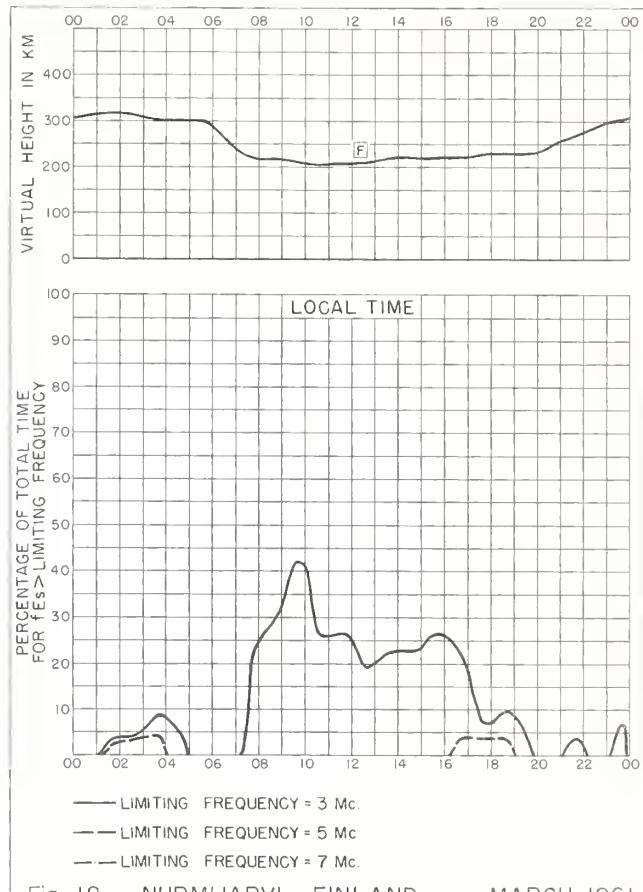
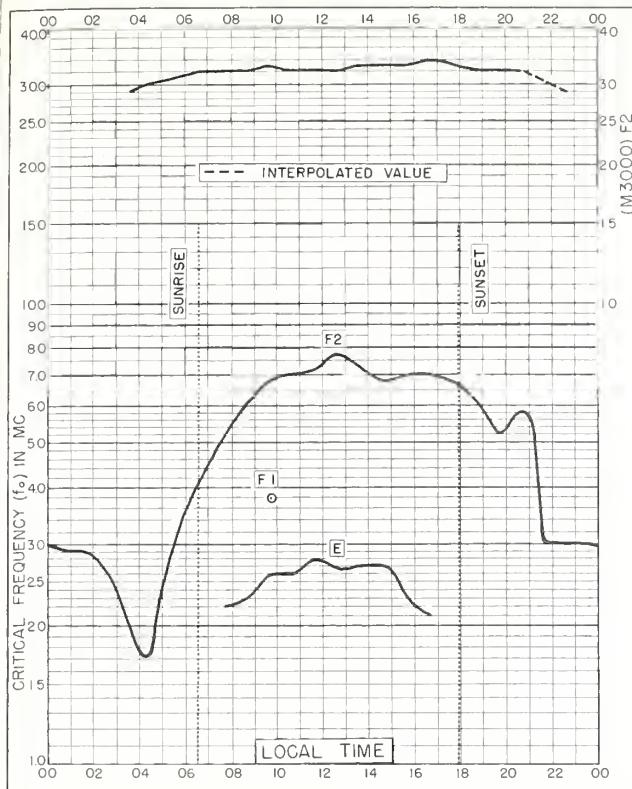


Fig. 16. LYCKSELE, SWEDEN MARCH 1961



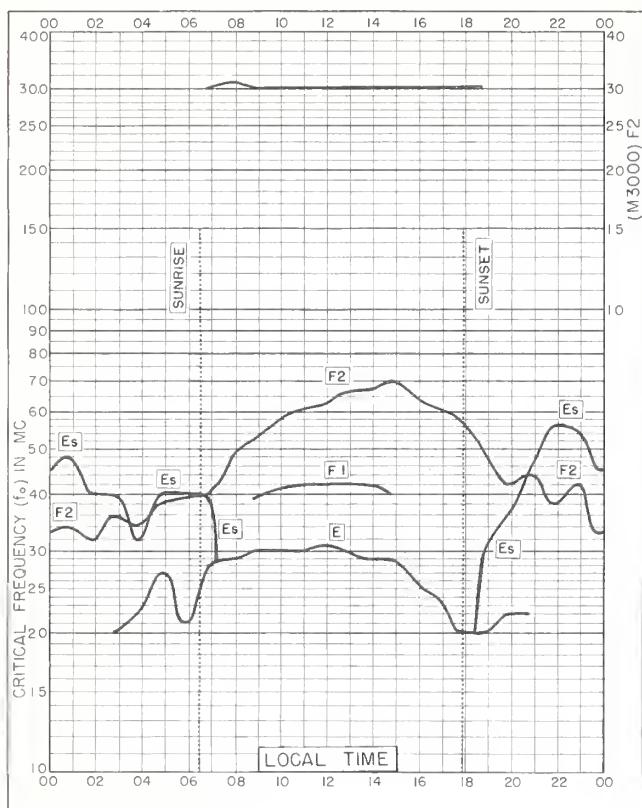


Fig. 21. CHURCHILL, CANADA

58.8°N, 94.2°W

MARCH 1961

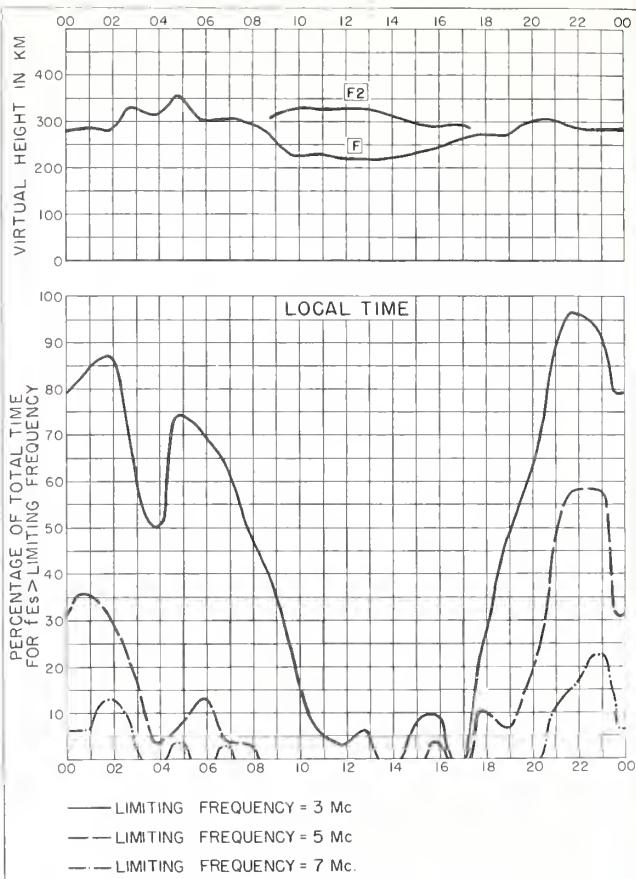


Fig. 22. CHURCHILL, CANADA

MARCH 1961

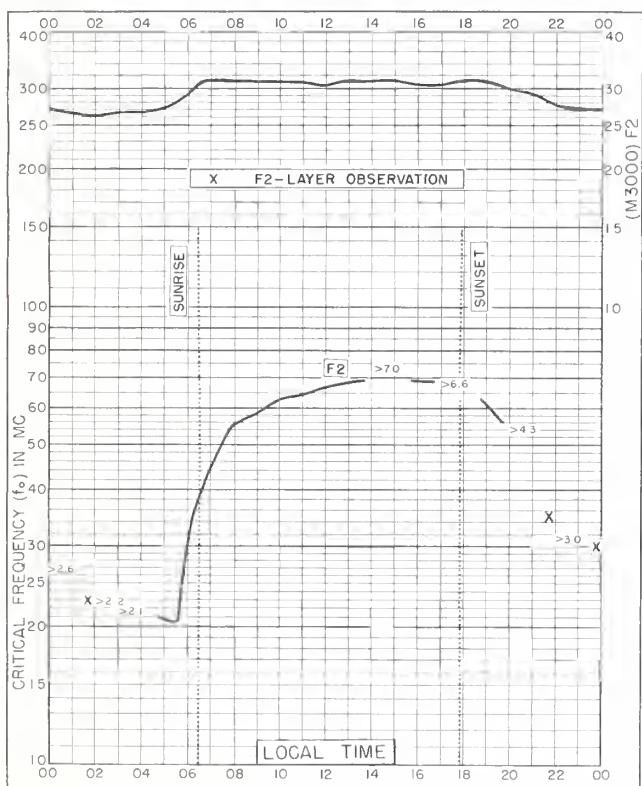


Fig. 23. INVERNESS, SCOTLAND

57.4°N, 4.2°W

MARCH 1961

NBS 503

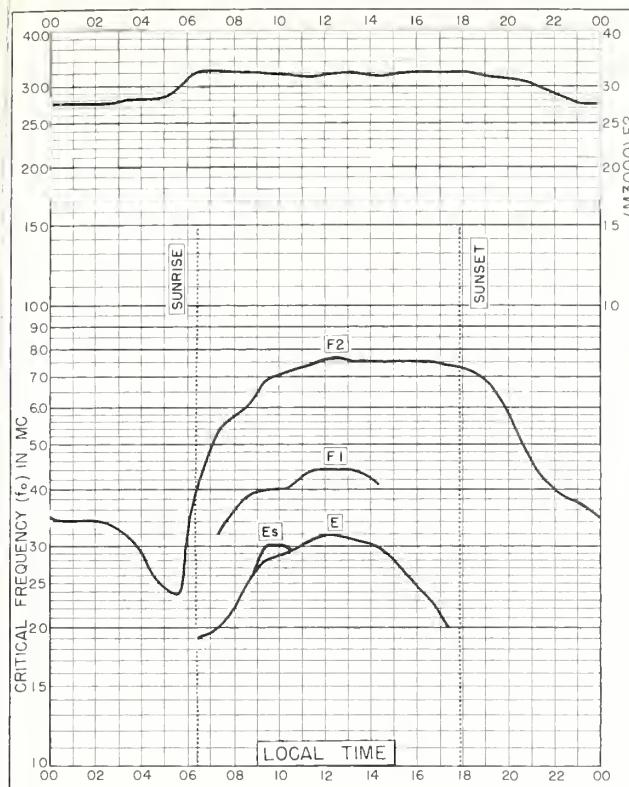


Fig. 24. De BILT, HOLLAND
52.1°N, 5.2°E MARCH 1961

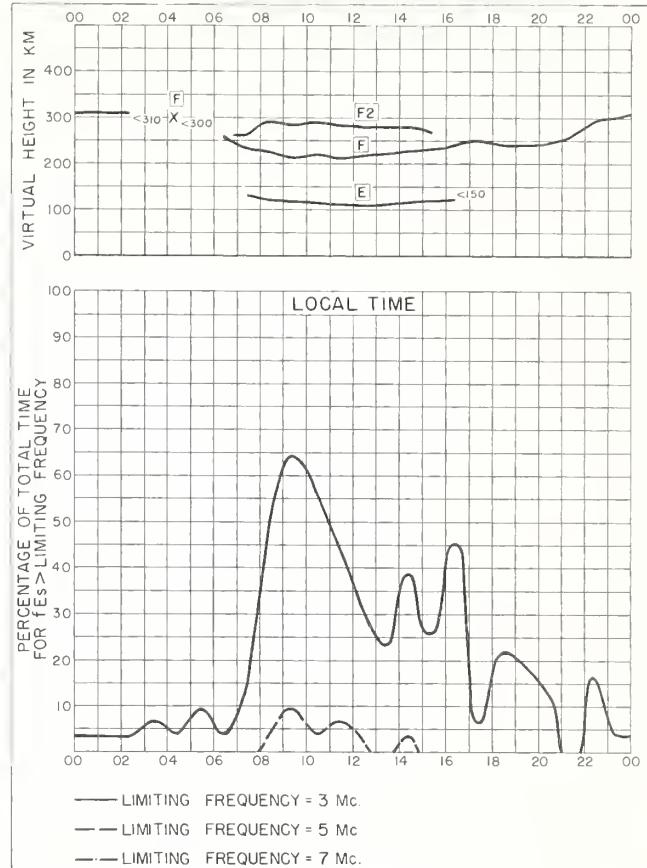


Fig. 25. De BILT, HOLLAND MARCH 1961

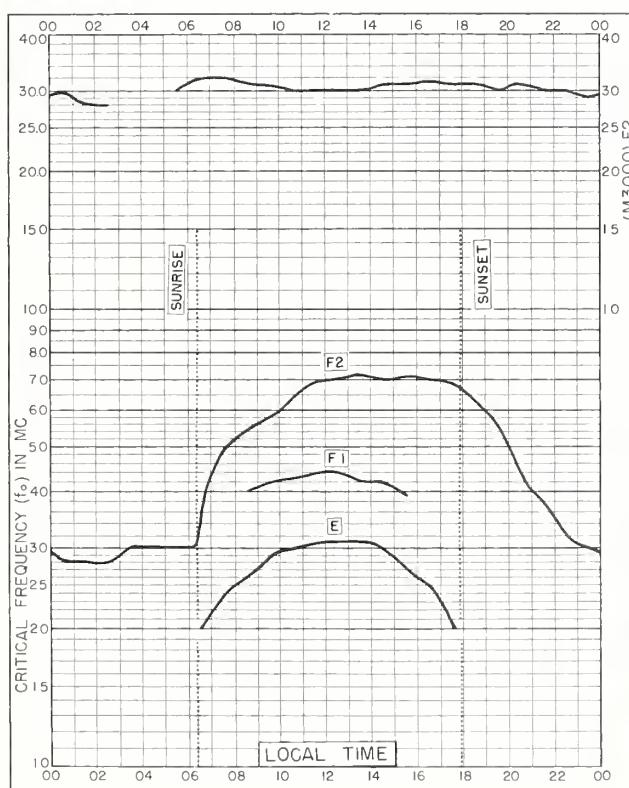


Fig. 26. WINNIPEG, CANADA
49.9°N, 97.4°W MARCH 1961

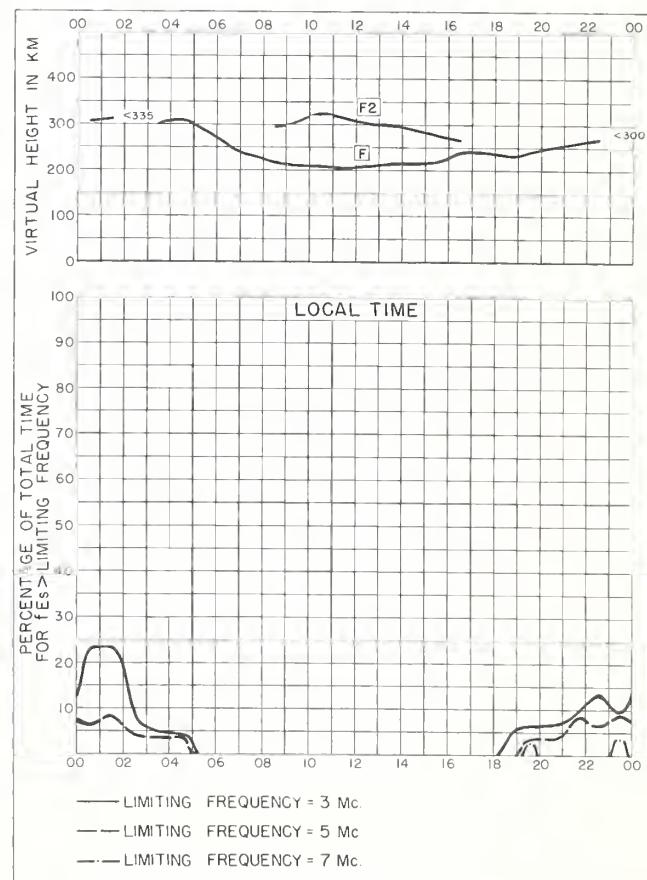
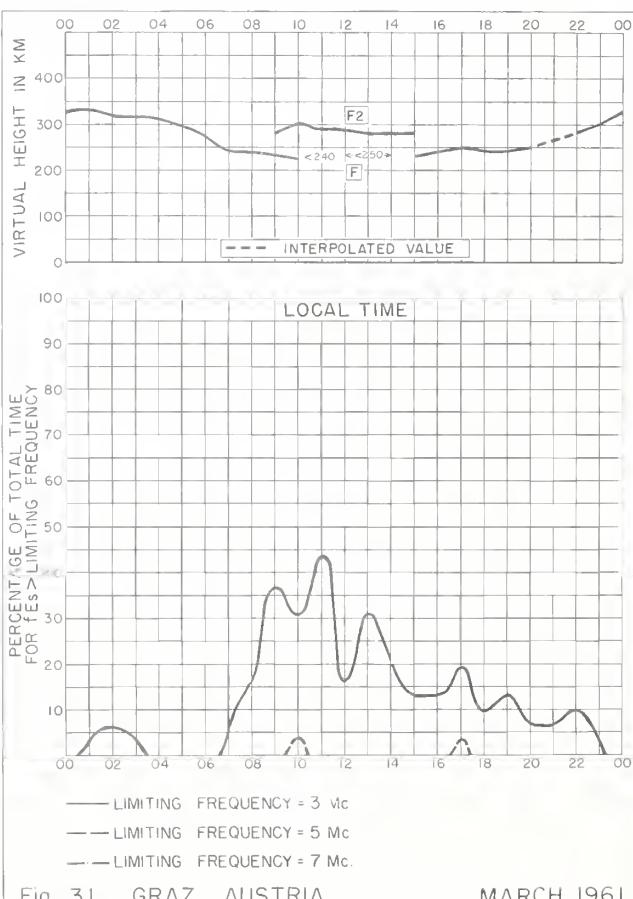
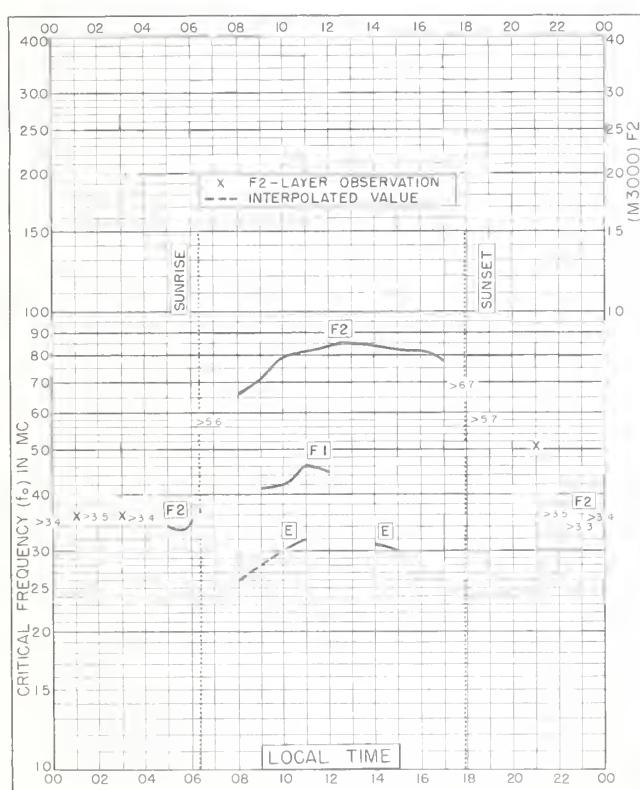
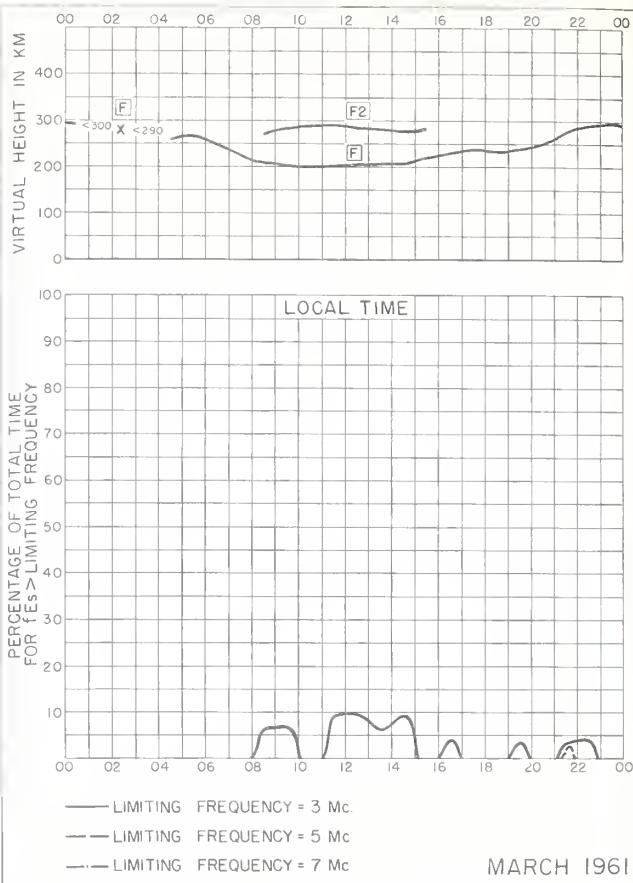
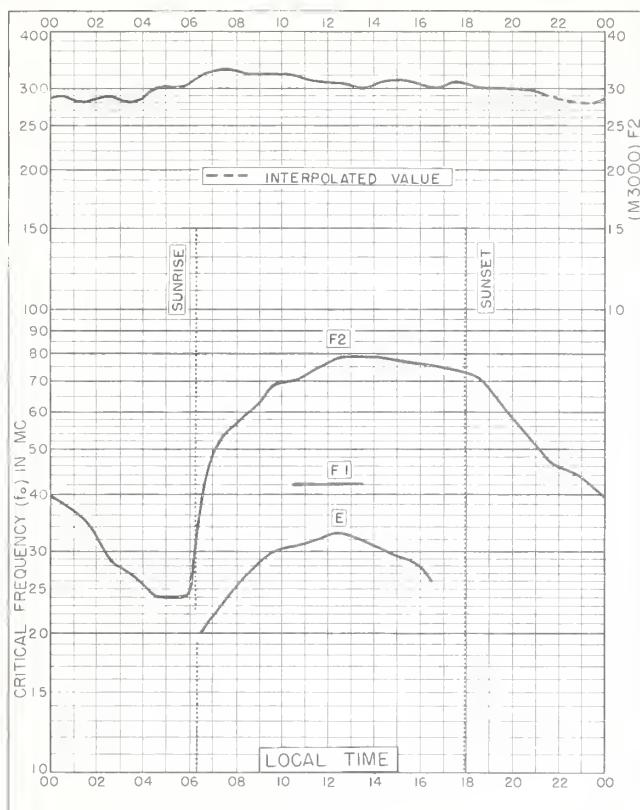
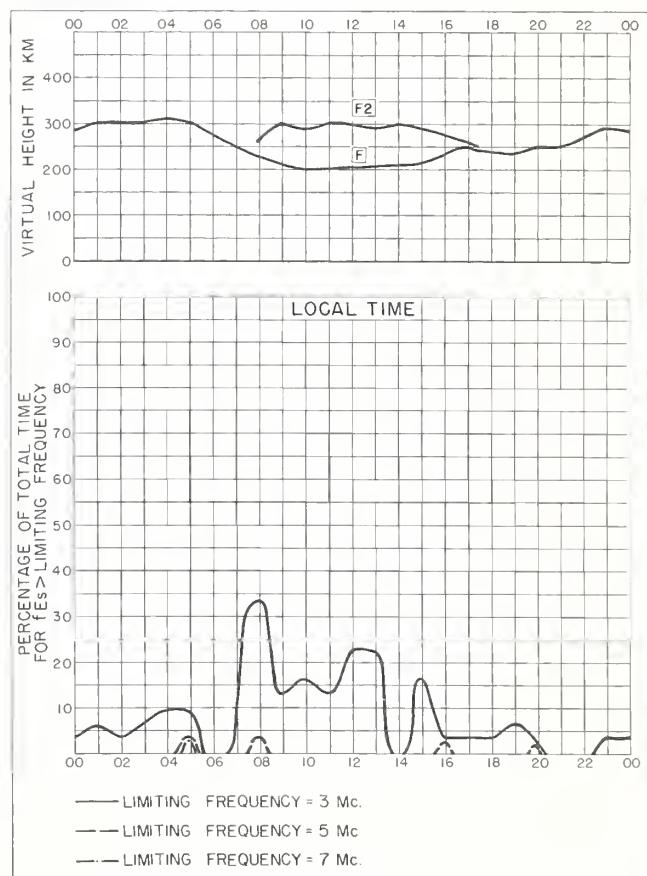
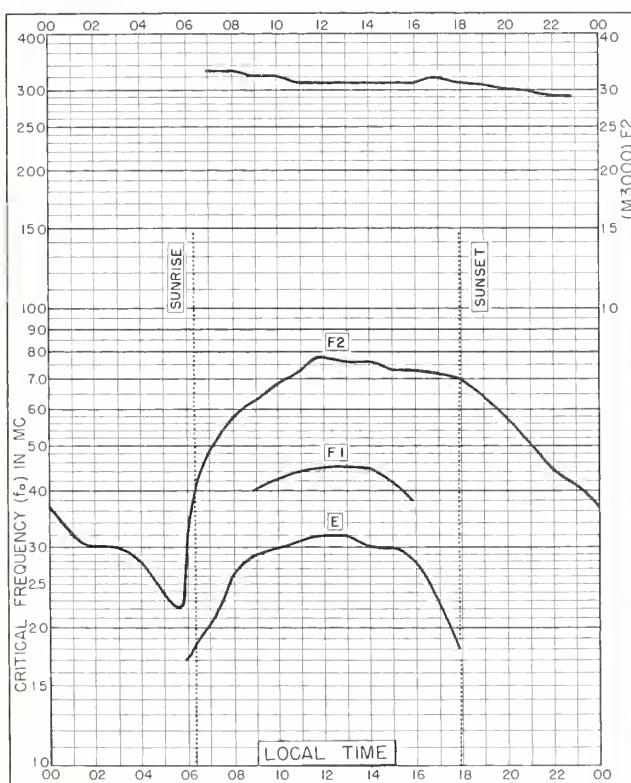
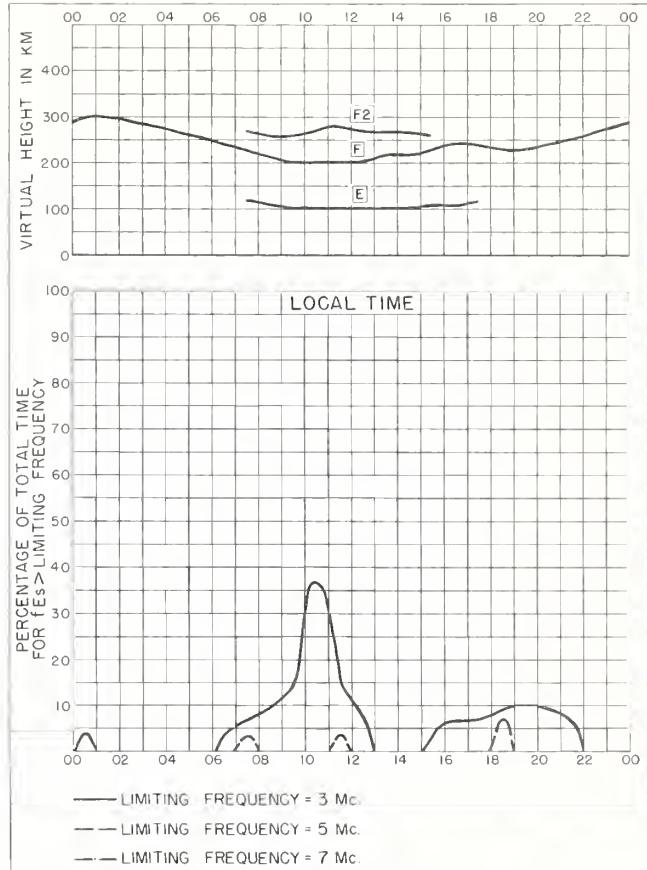
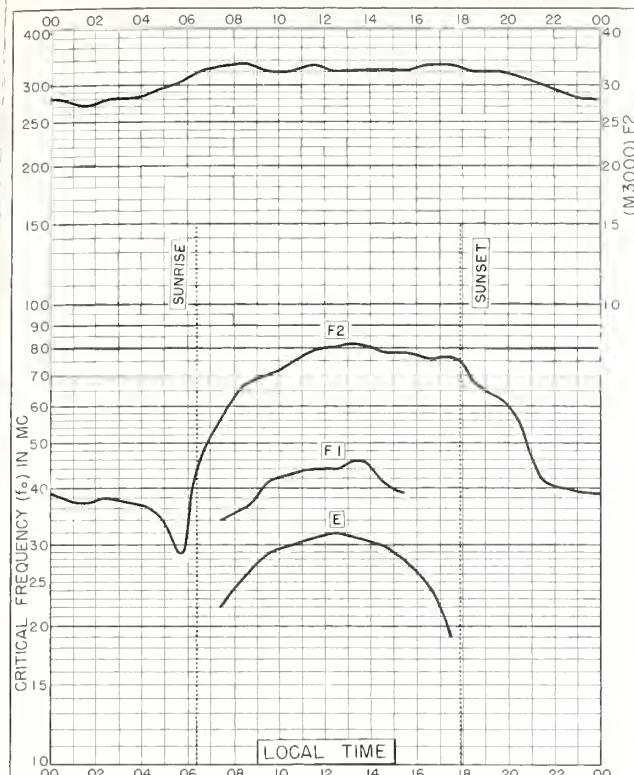
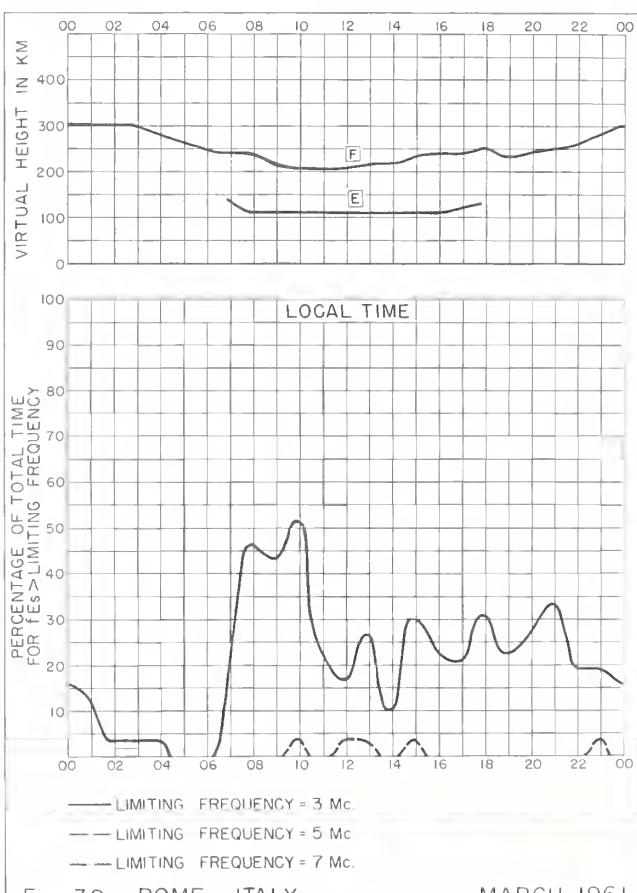
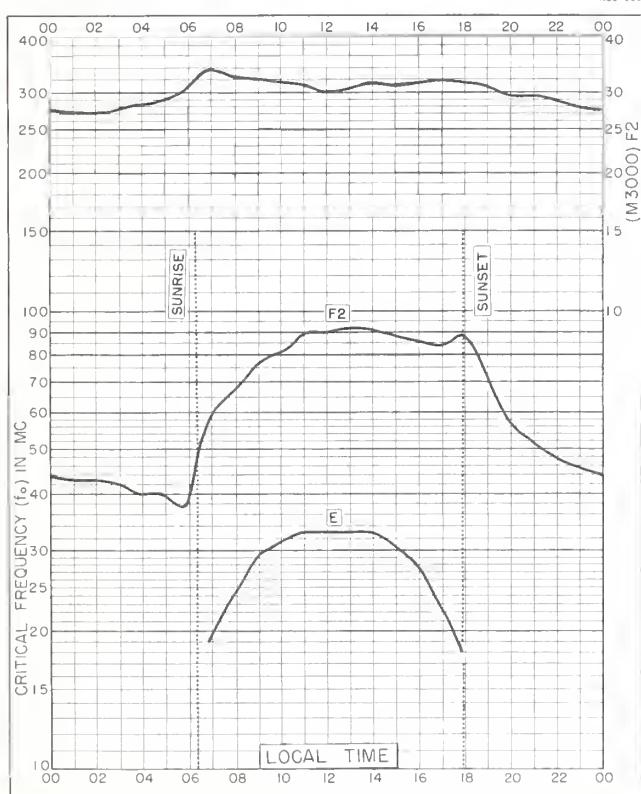
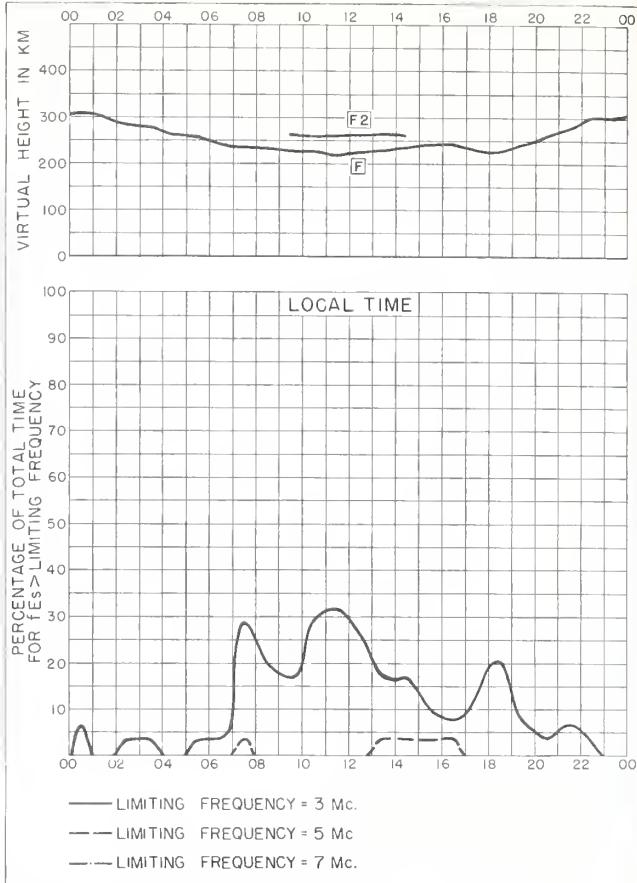
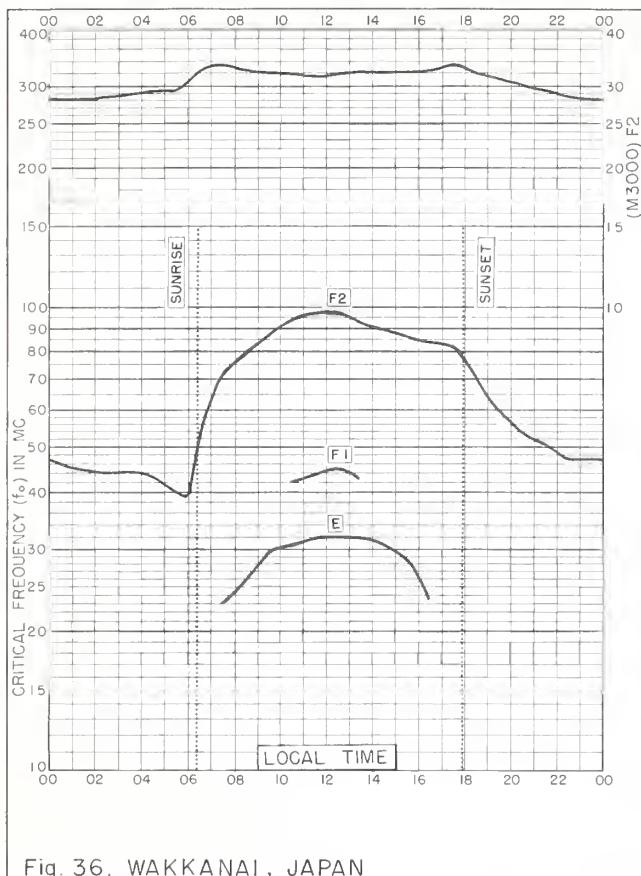
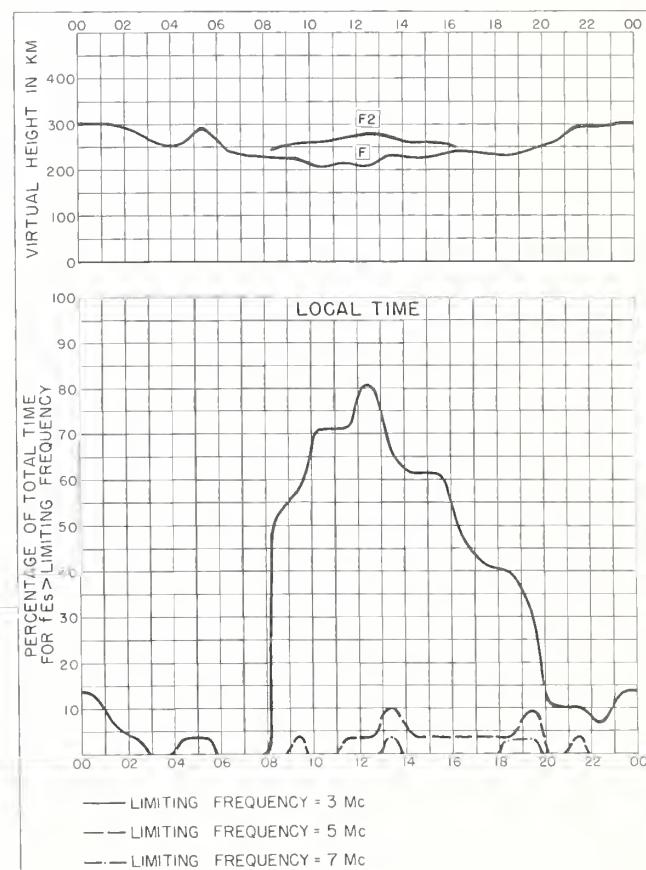
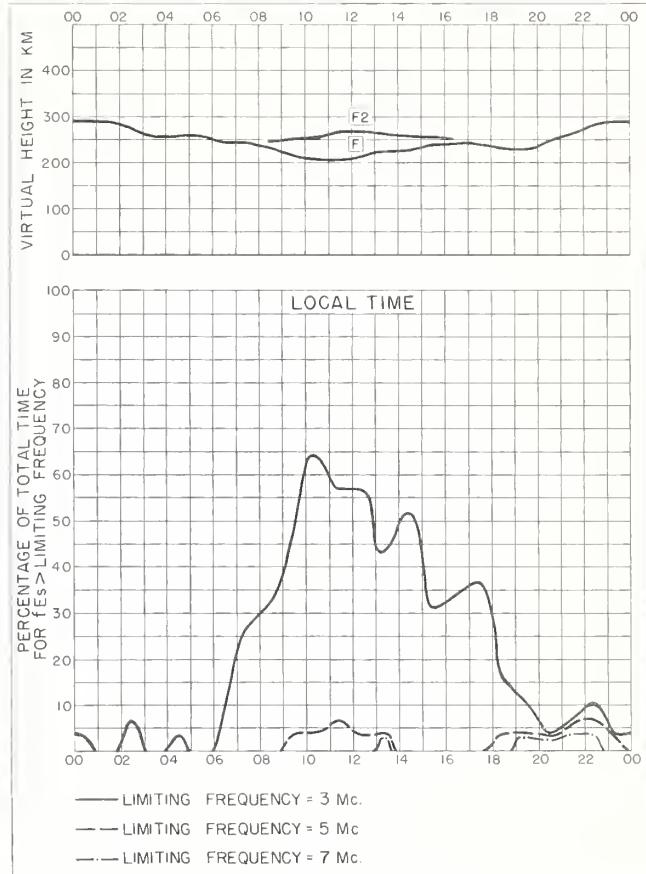
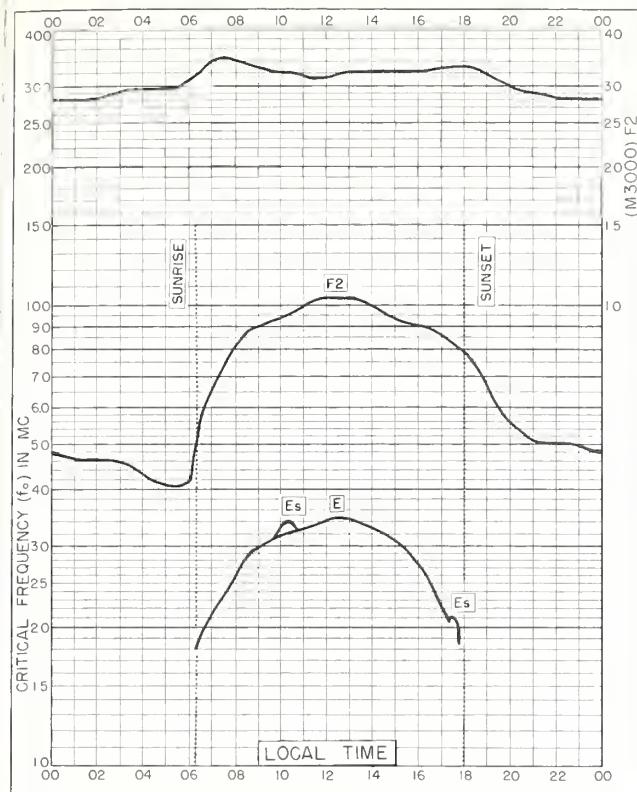


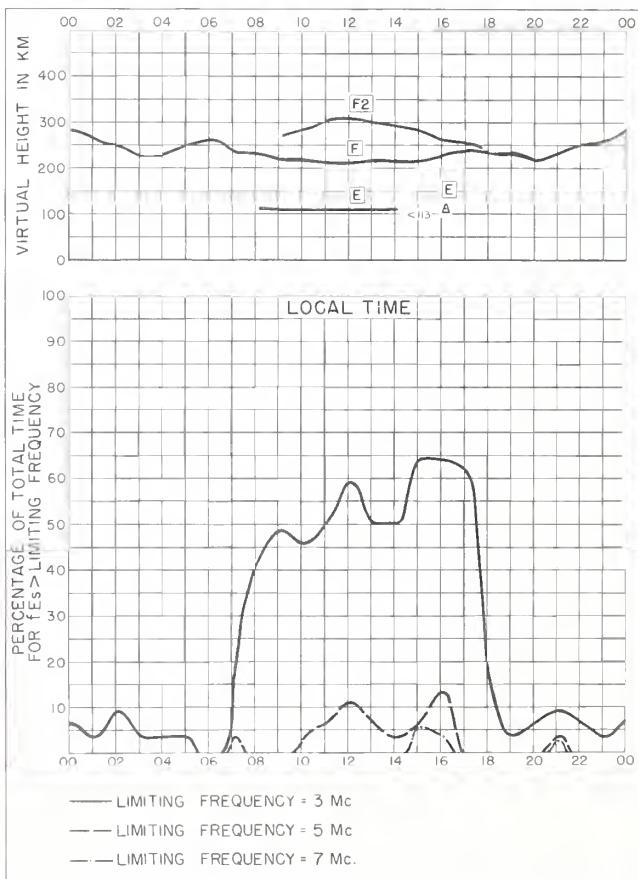
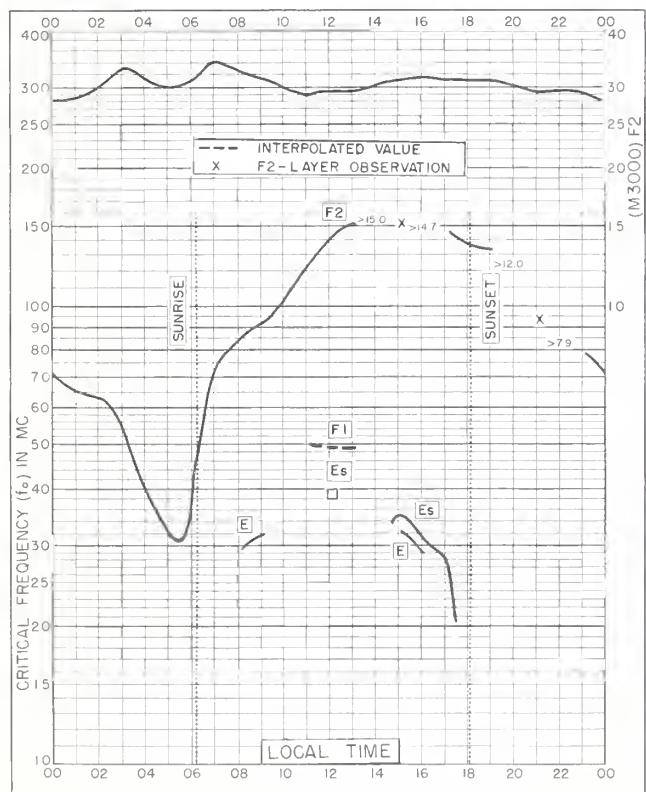
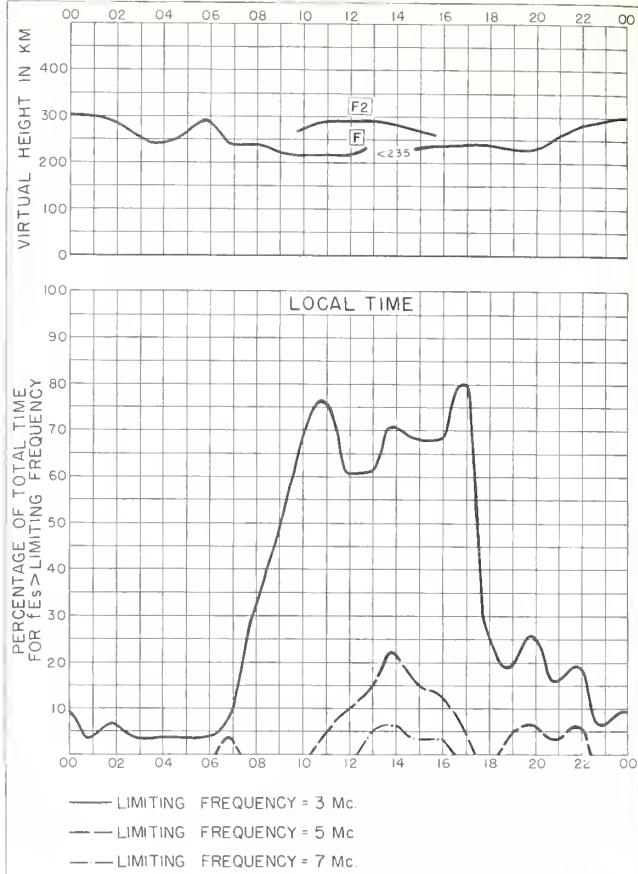
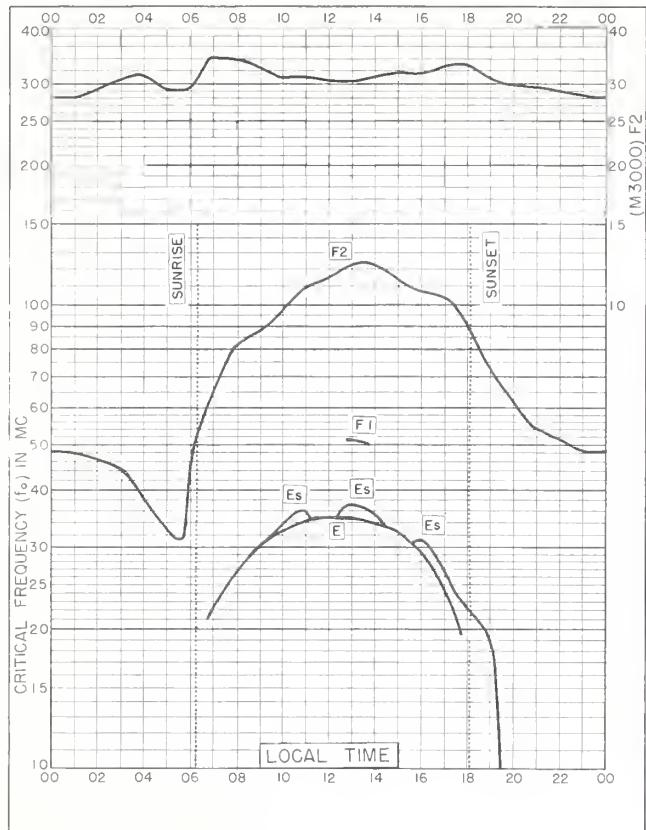
Fig. 27. WINNIPEG, CANADA MARCH 1961











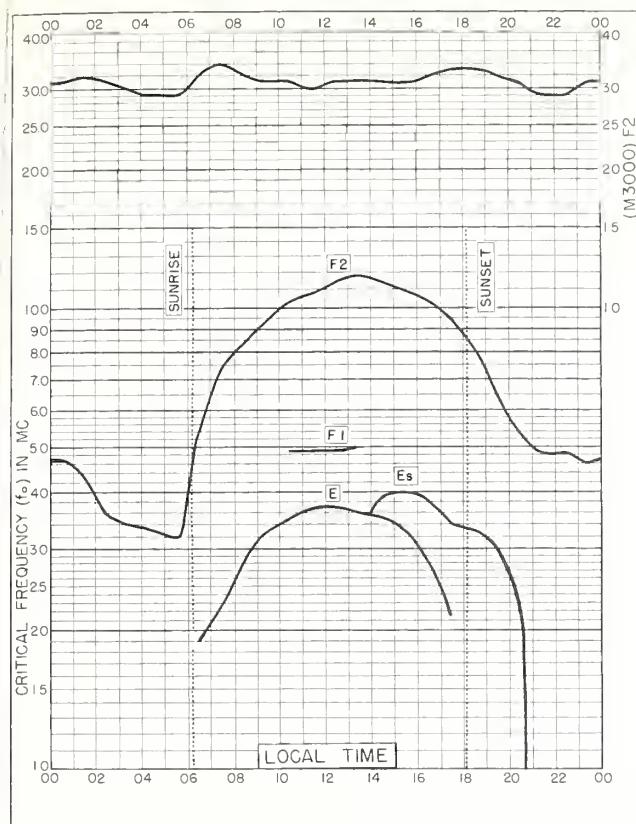


Fig. 48. EL CERILLO, MEXICO
19.3°N, 99.5°W MARCH 1961

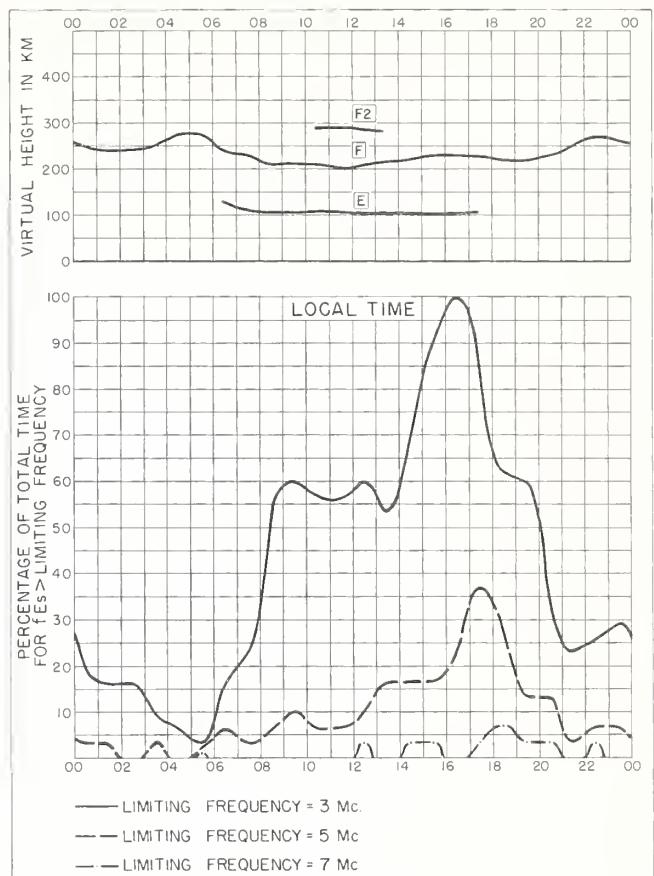


Fig. 49. EL CERILLO, MEXICO MARCH 1961

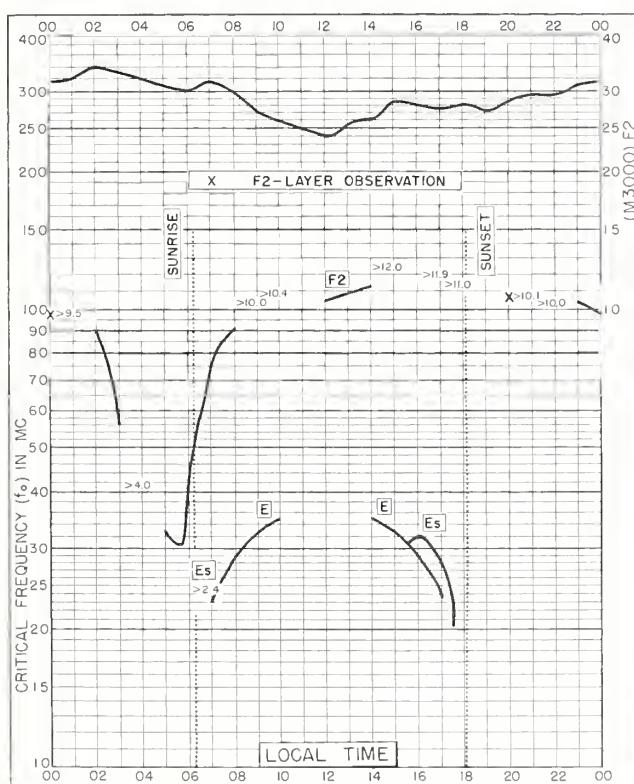


Fig. 50. BAGUIO, P. I.
16.4°N, 120.6°E MARCH 1961

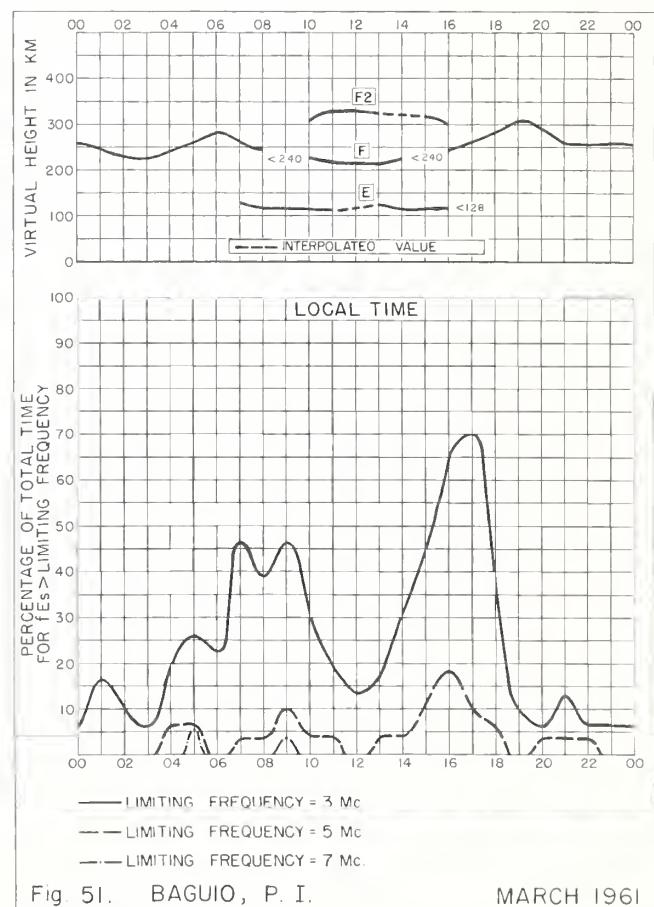


Fig. 51. BAGUIO, P. I. MARCH 1961

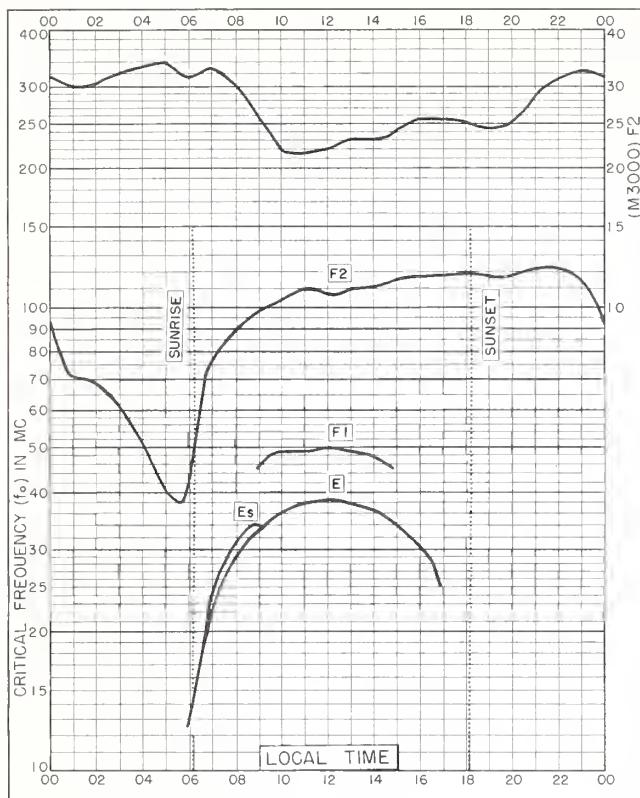


Fig. 52. SINGAPORE, BRITISH MALAYA
1.3°N, 103.8°E MARCH 1961

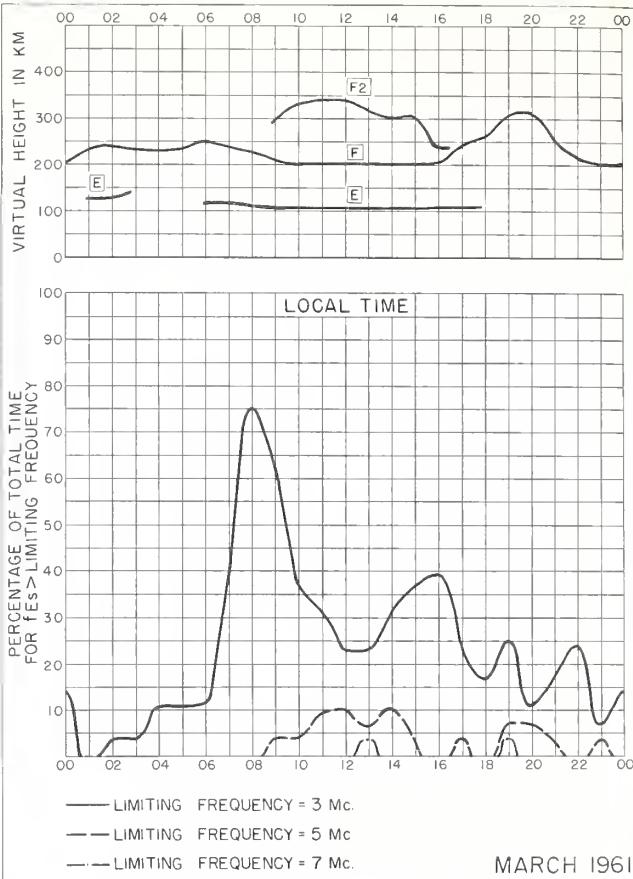


Fig. 53. SINGAPORE, BRITISH MALAYA MARCH 1961

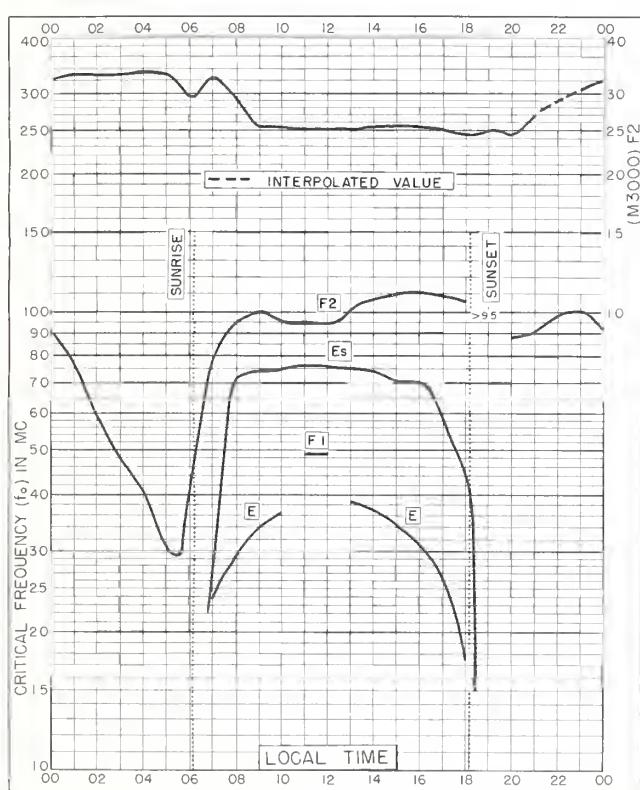


Fig. 54. HUANCAYO, PERU
12.0°S, 75.3°W MARCH 1961

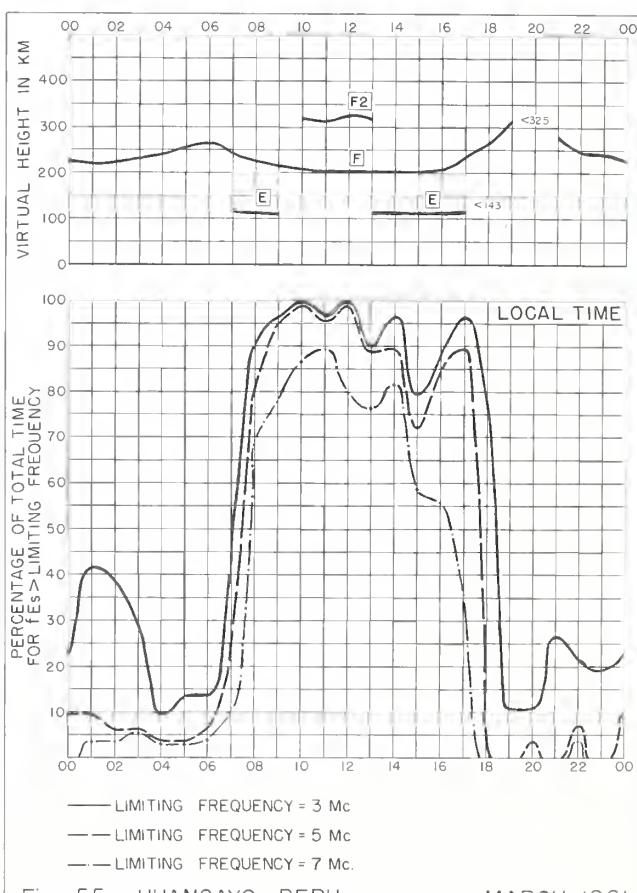
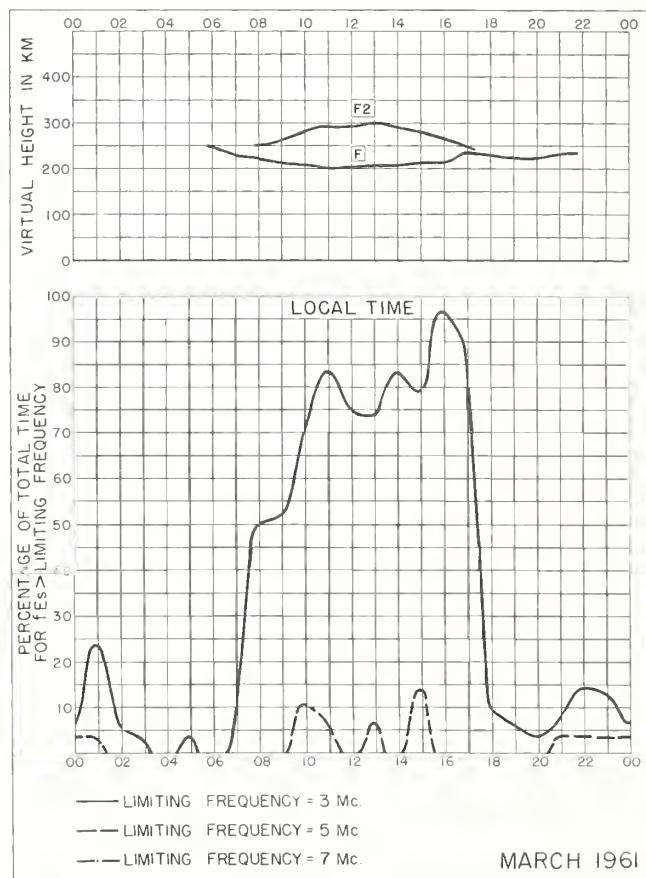
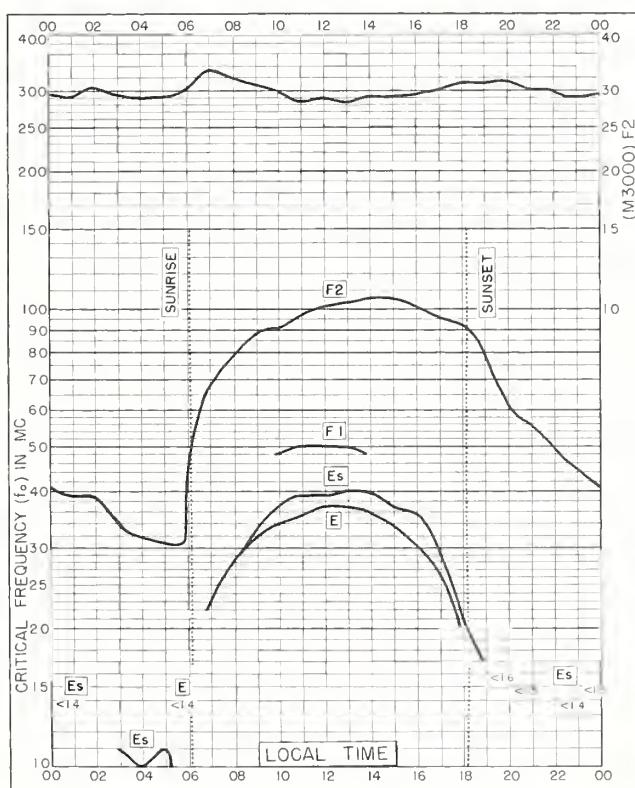
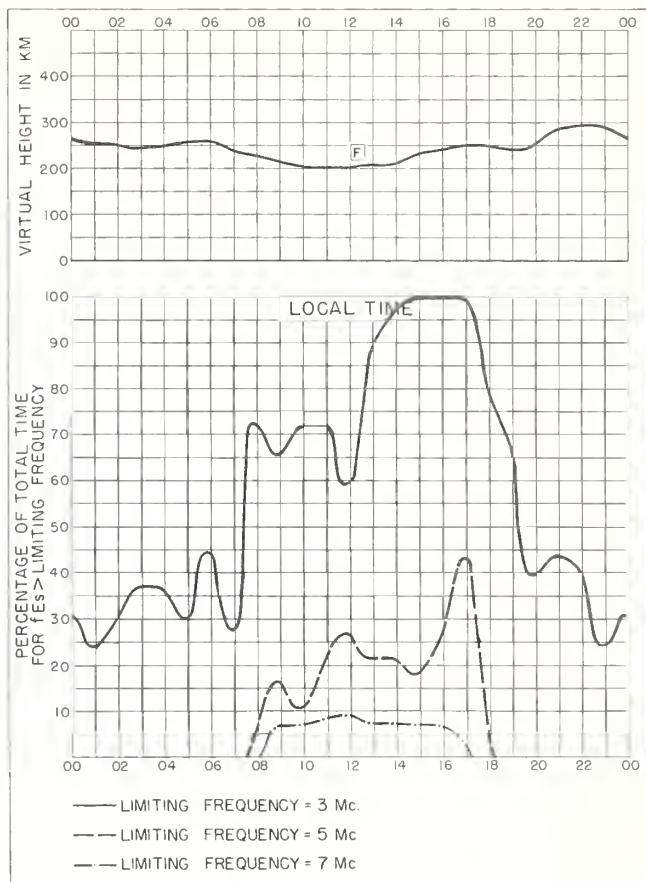
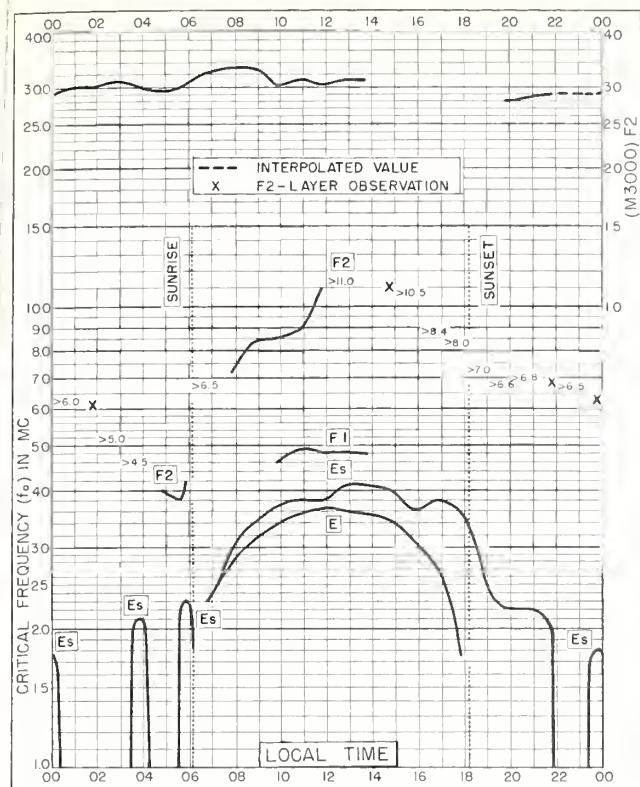
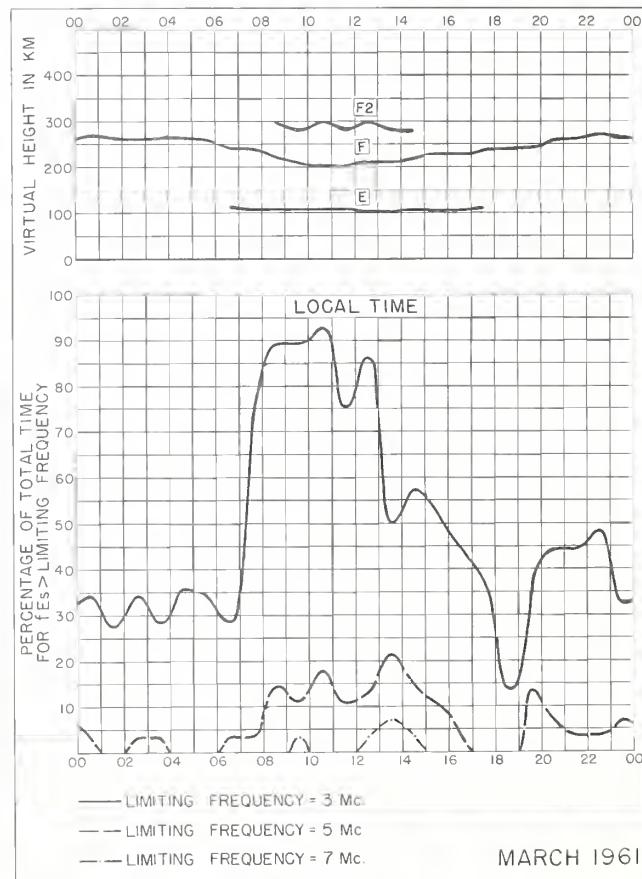
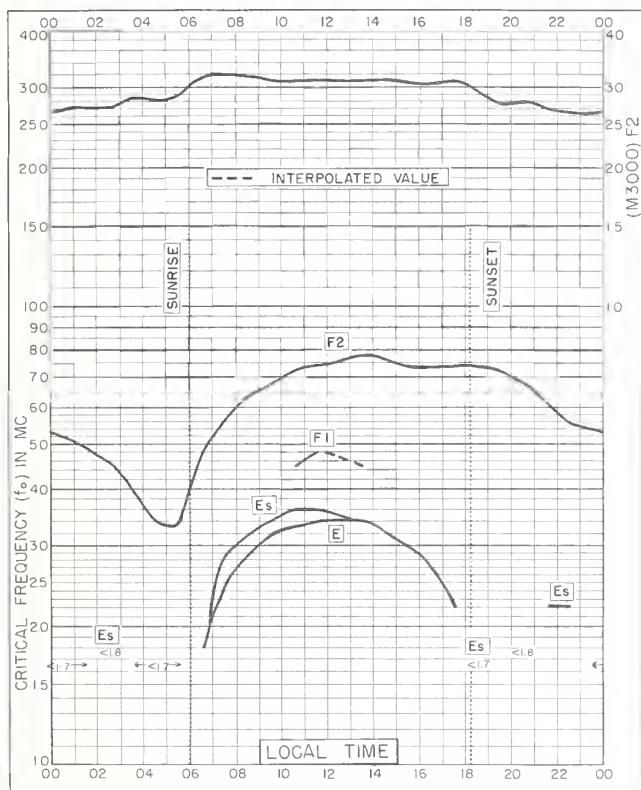
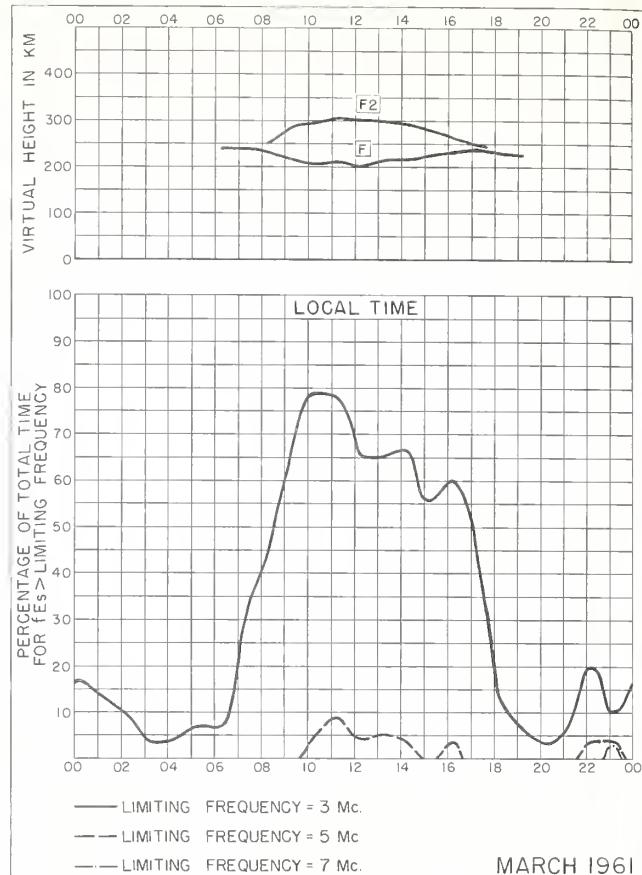
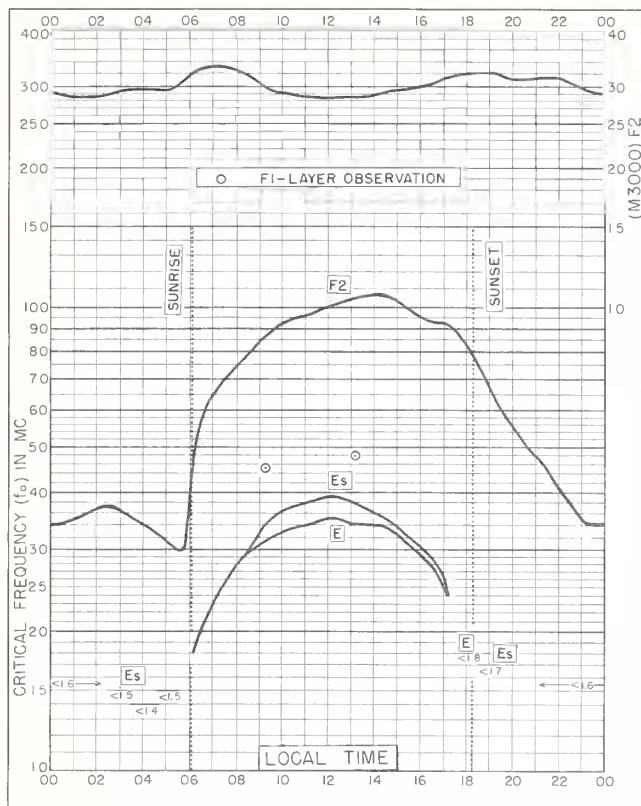


Fig. 55. HUANCAYO, PERU MARCH 1961





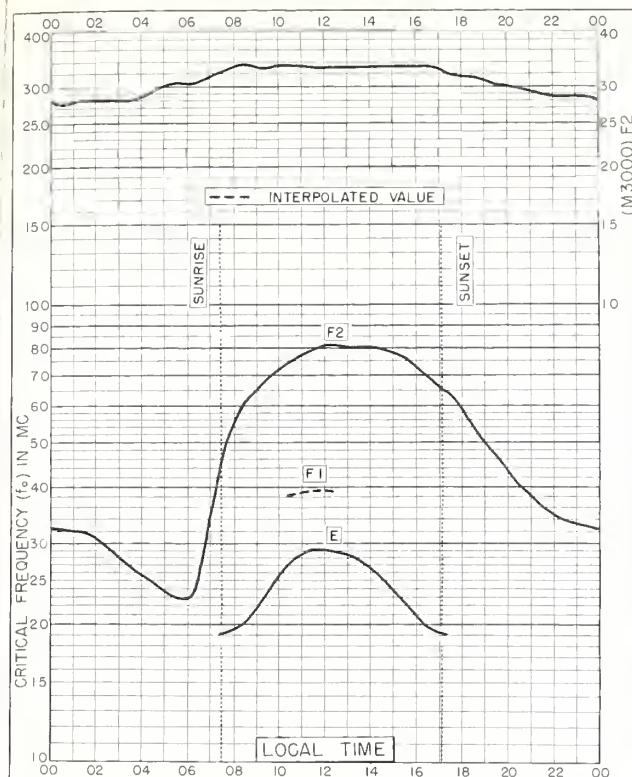


Fig. 64. De BILT, HOLLAND
52.1°N, 5.2°E FEBRUARY 1961

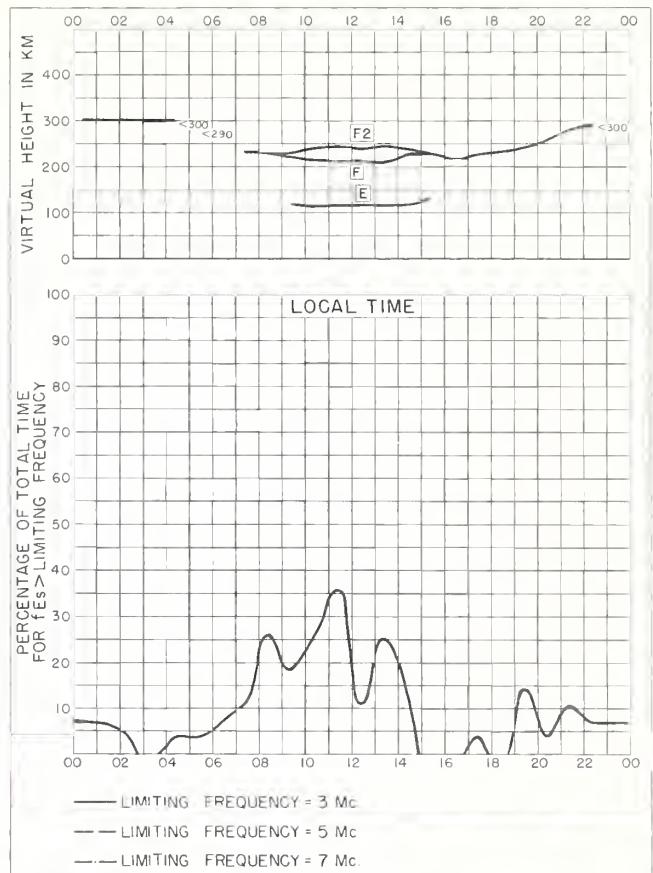


Fig. 65. De BILT, HOLLAND FEBRUARY 1961

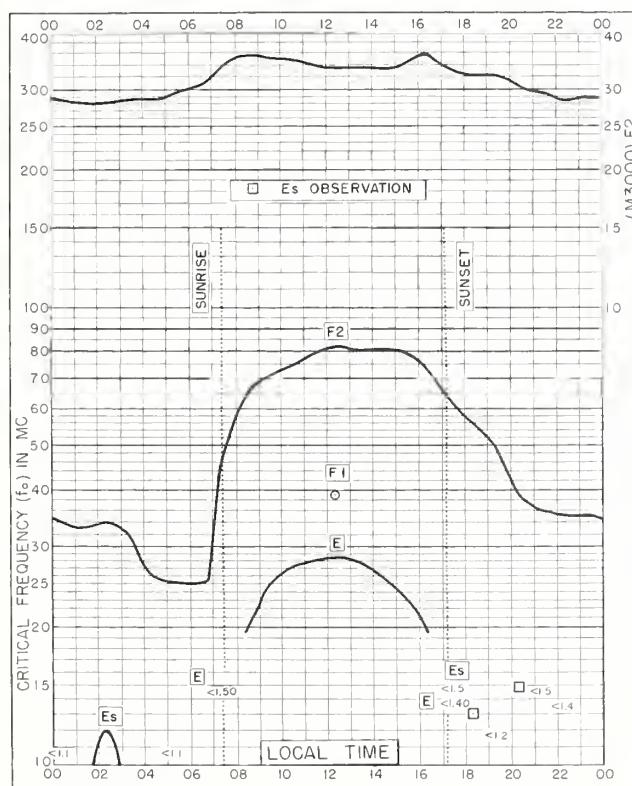


Fig. 66. DOURBES, BELGIUM
50.1°N, 4.6°E FEBRUARY 1961

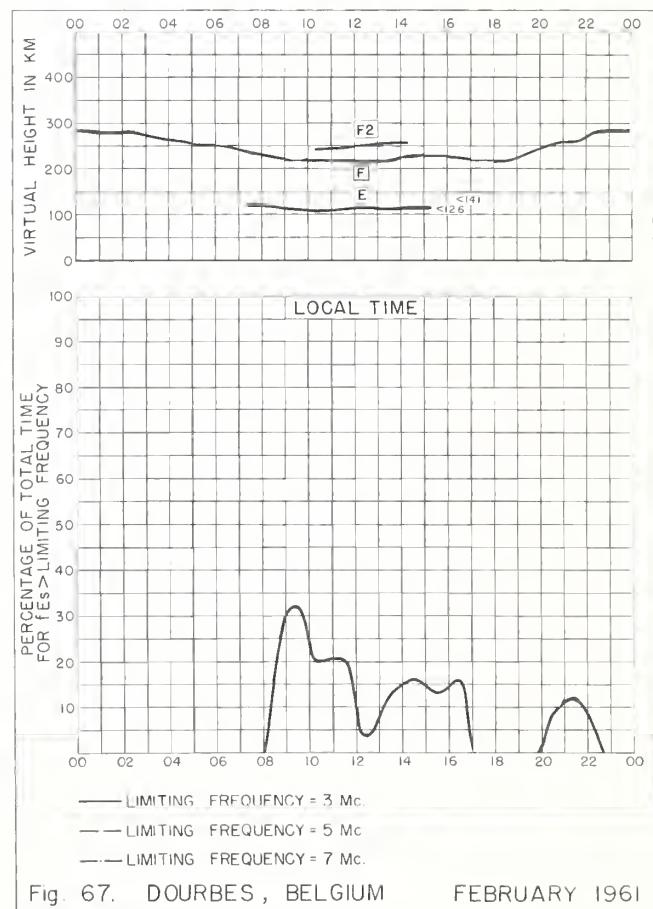


Fig. 67. DOURBES, BELGIUM FEBRUARY 1961

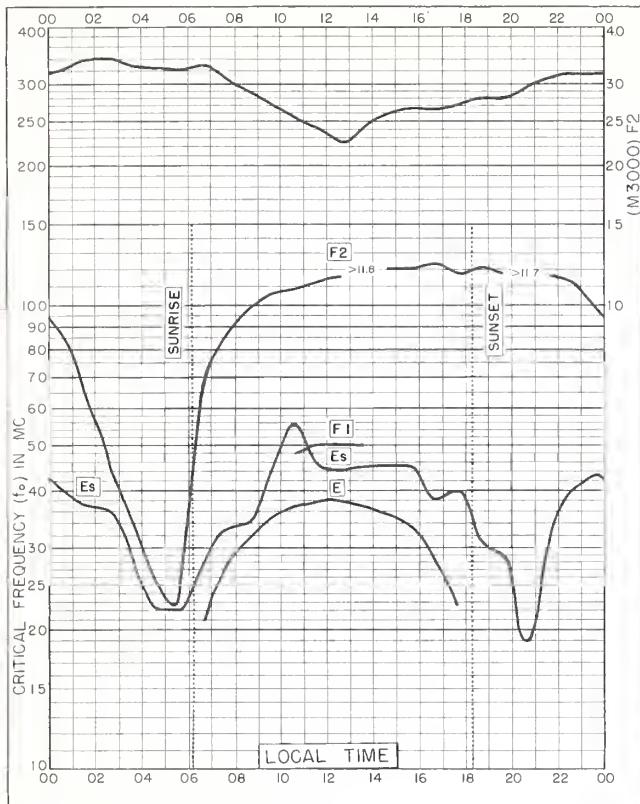


Fig. 68. TALARA, PERU
4.6°S, 81.3°W FEBRUARY 1961

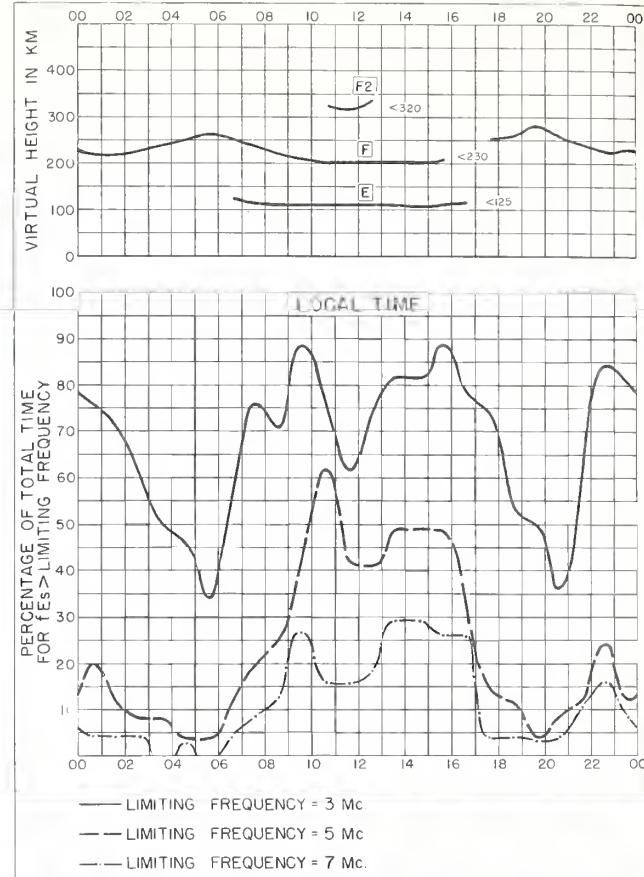


Fig. 69. TALARA, PERU FEBRUARY 1961

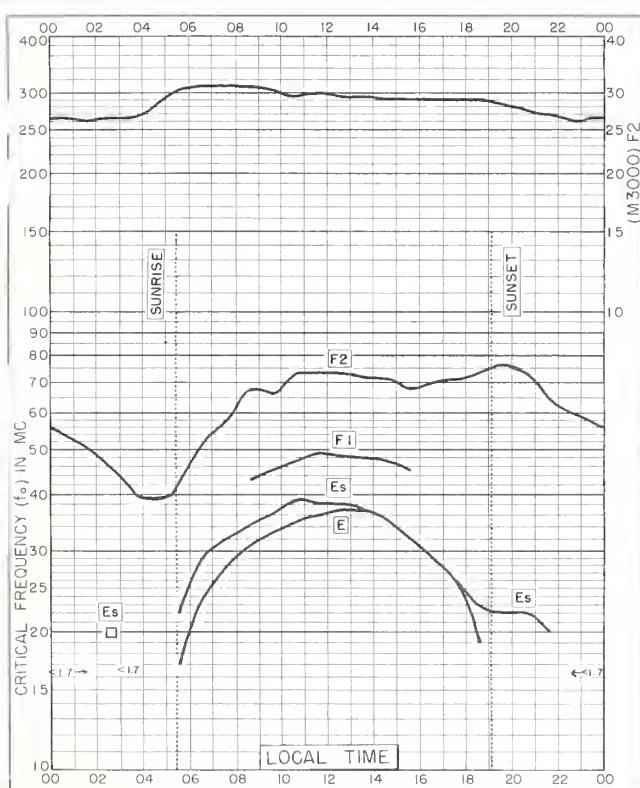


Fig. 70. CHRISTCHURCH, NEW ZEALAND
43.6°S, 172.8°E FEBRUARY 1961

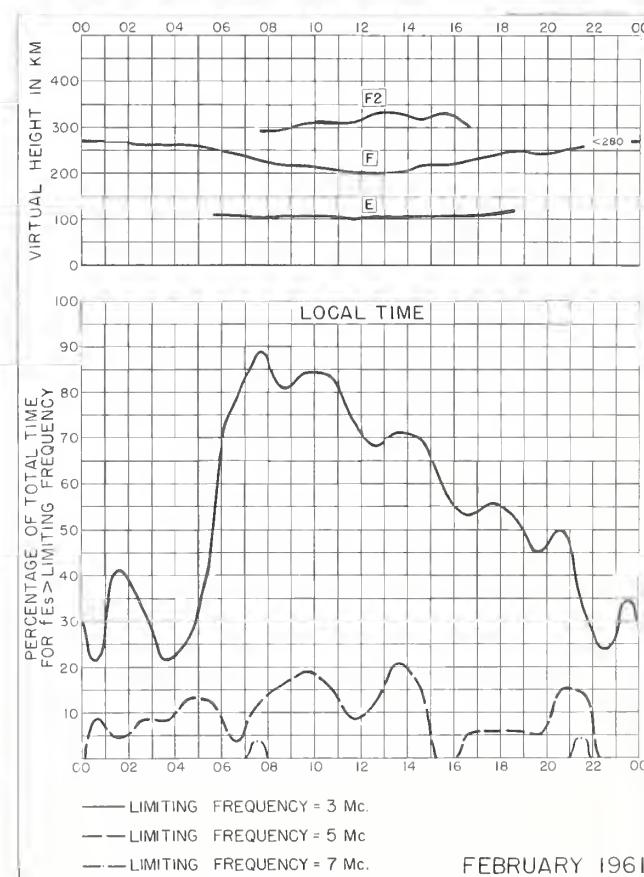


Fig. 71. CHRISTCHURCH, NEW ZEALAND FEBRUARY 1961

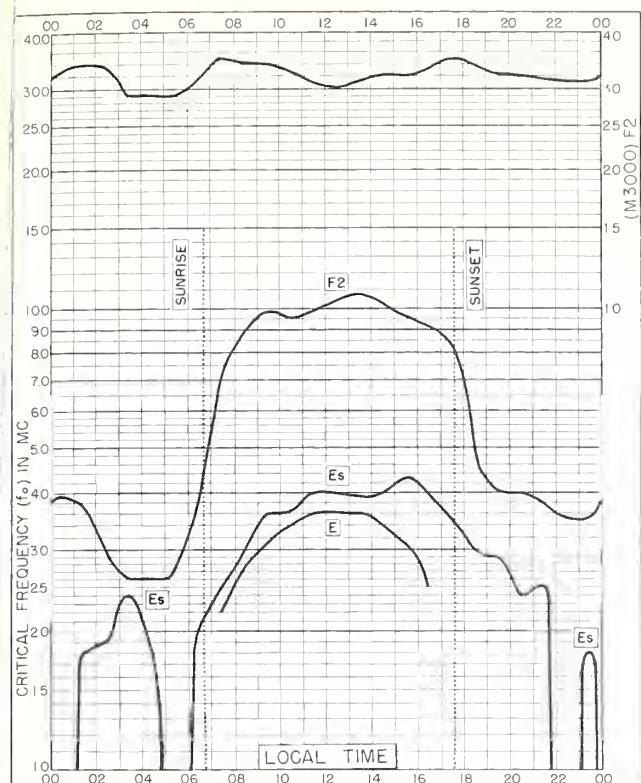


Fig. 72. EL CERILLO, MEXICO
19.3°N, 99.5°W JANUARY 1961

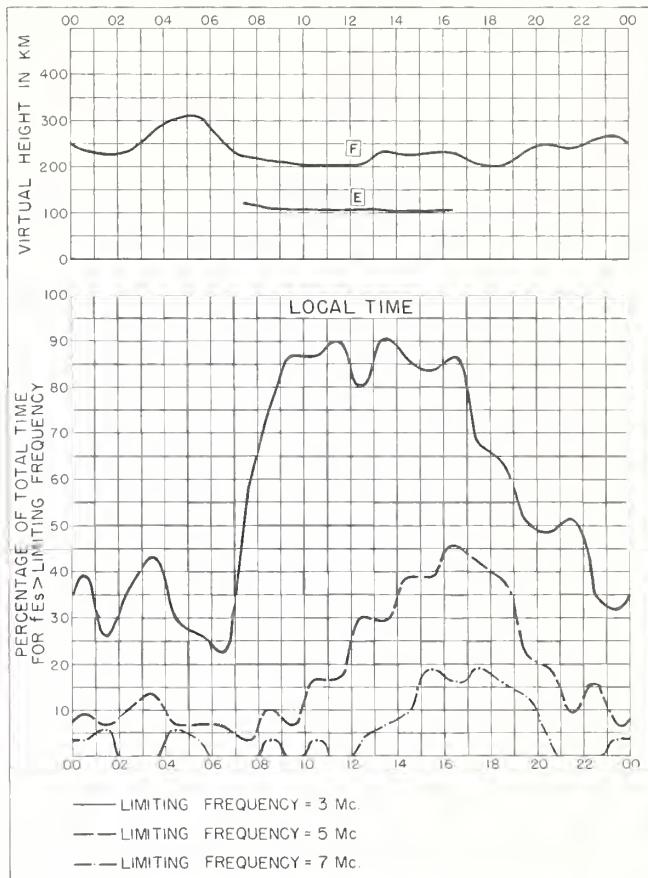


Fig. 73. EL CERILLO, MEXICO JANUARY 1961

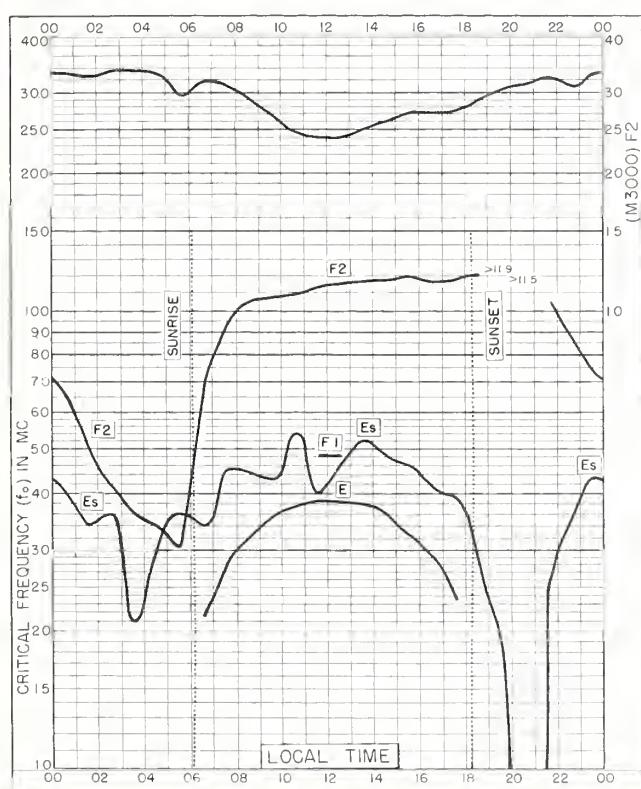


Fig. 74. TALARA, PERU
4.6°S, 81.3°W JANUARY 1961

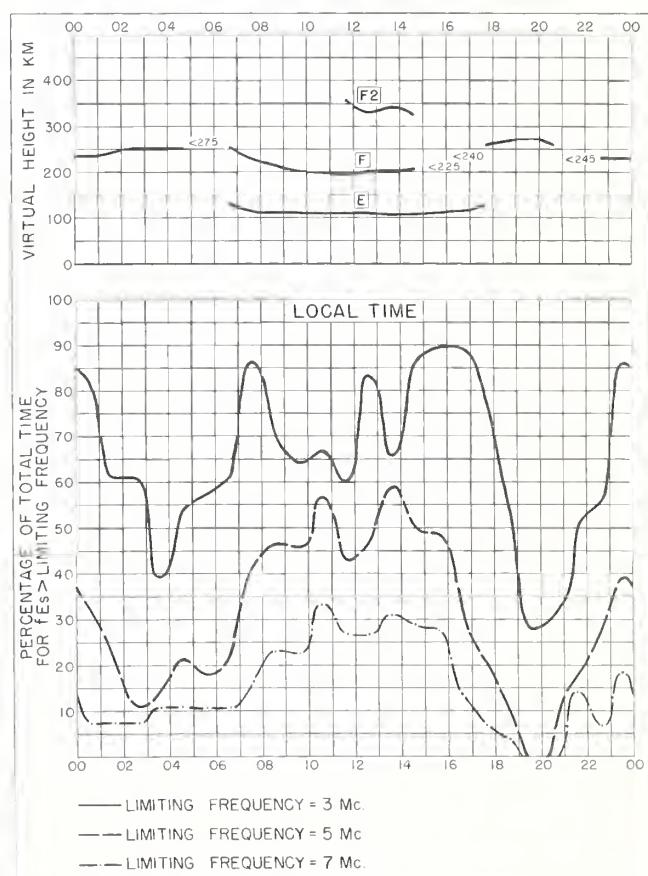


Fig. 75. TALARA, PERU JANUARY 1961

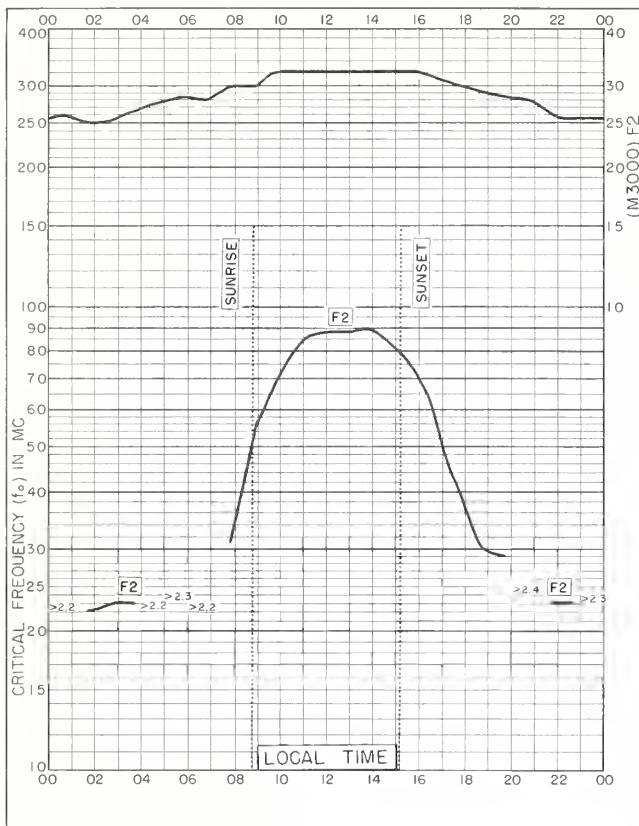


Fig. 76. INVERNESS, SCOTLAND
57.4°N, 4.2°W DECEMBER 1960

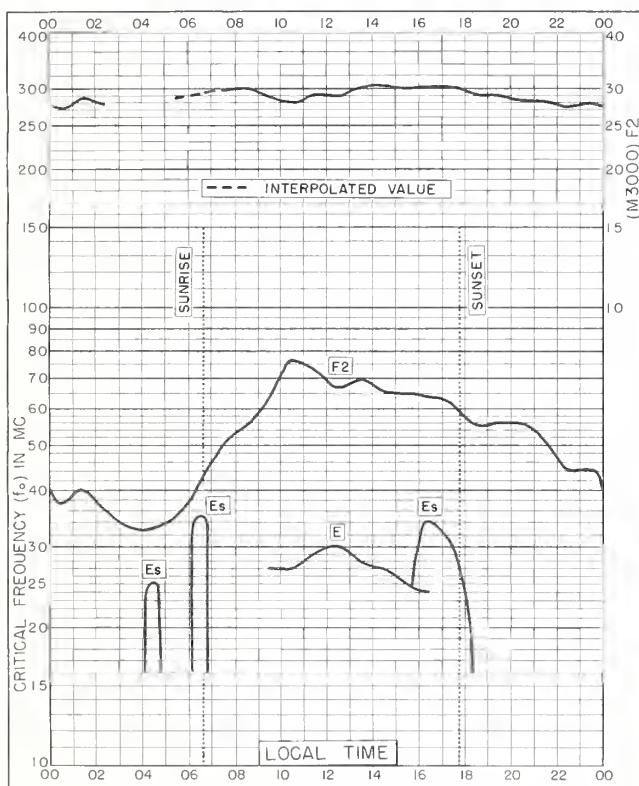


Fig. 77. GODHAVN, GREENLAND
69.3°N, 53.5°W MARCH 1960

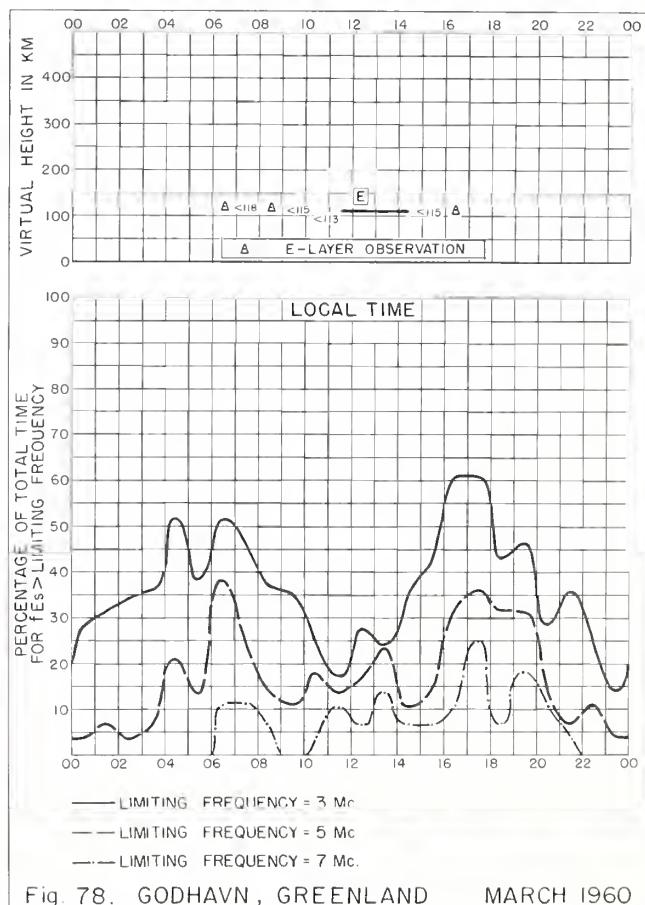
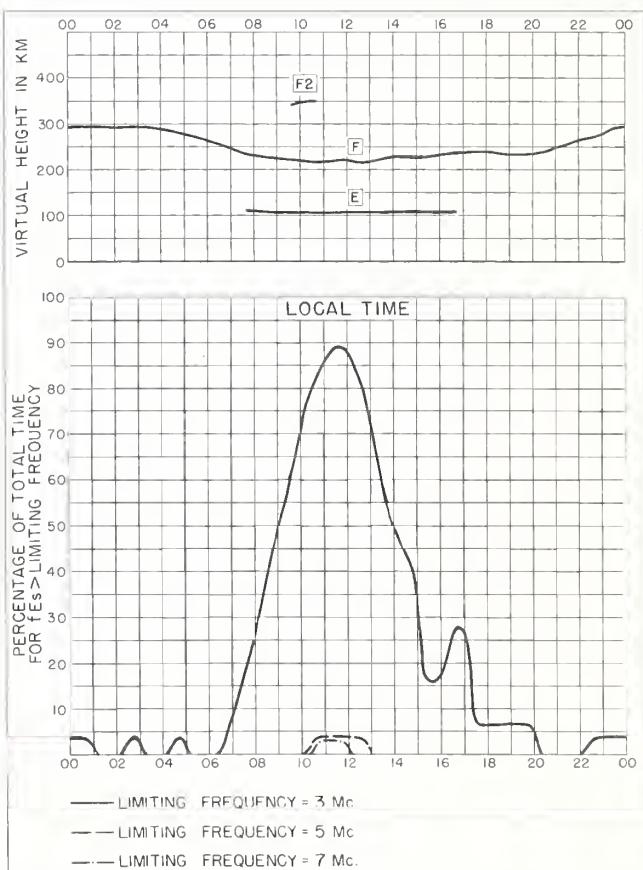
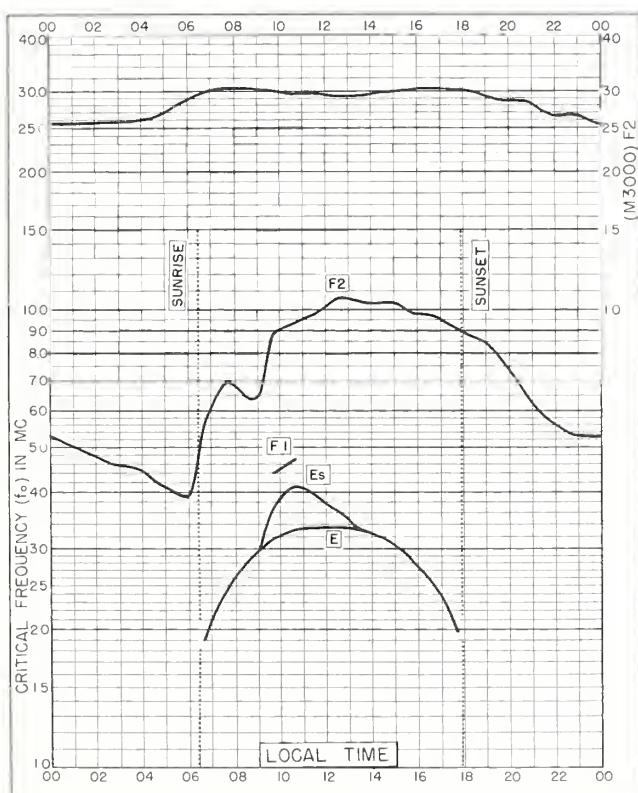
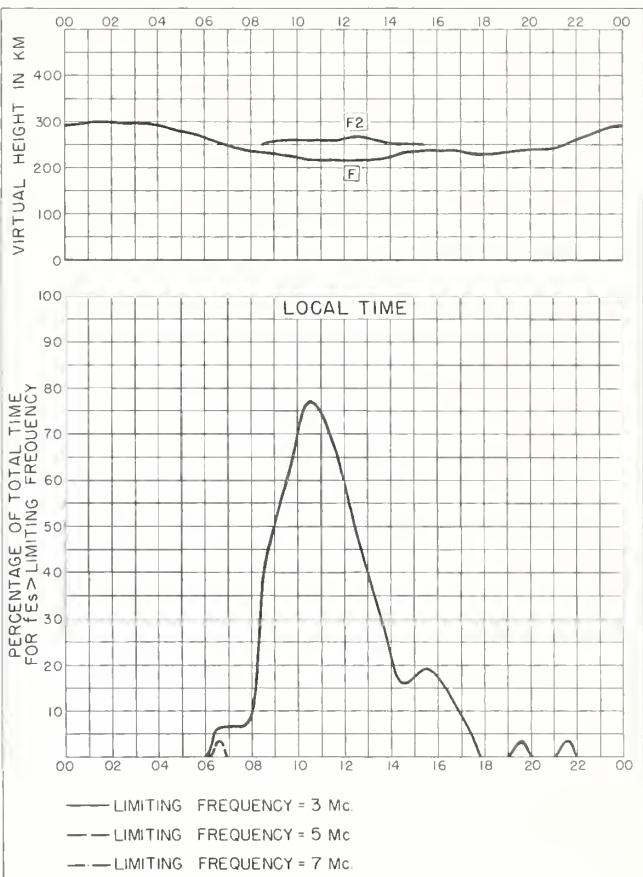
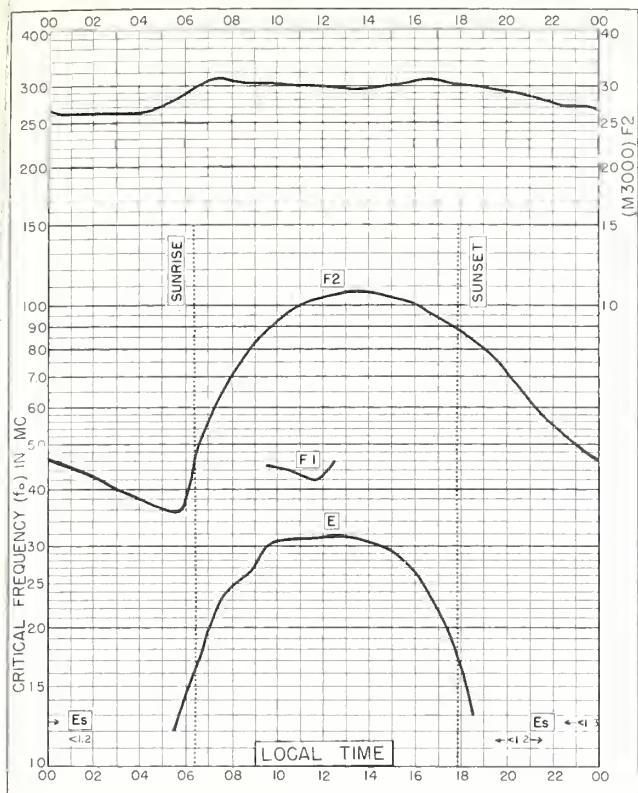
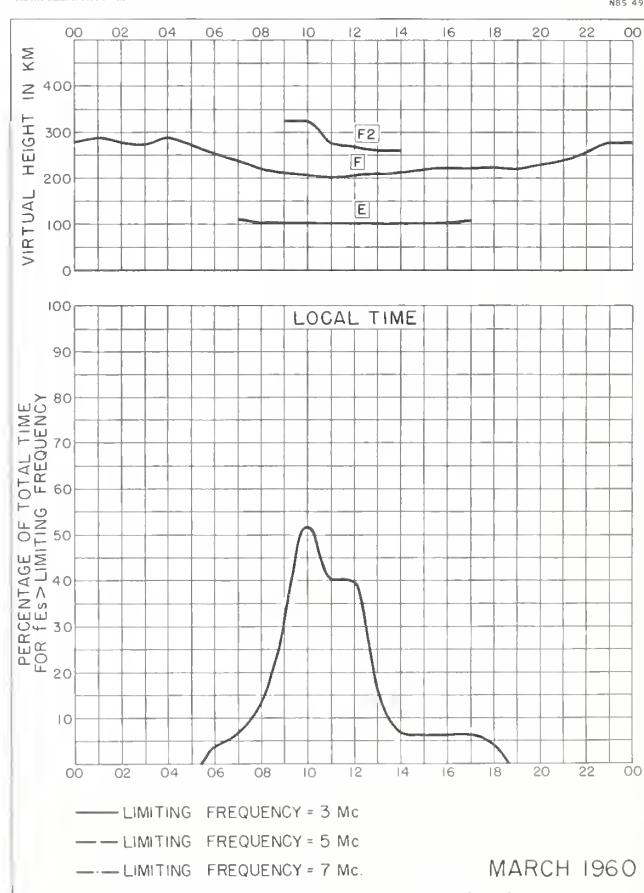
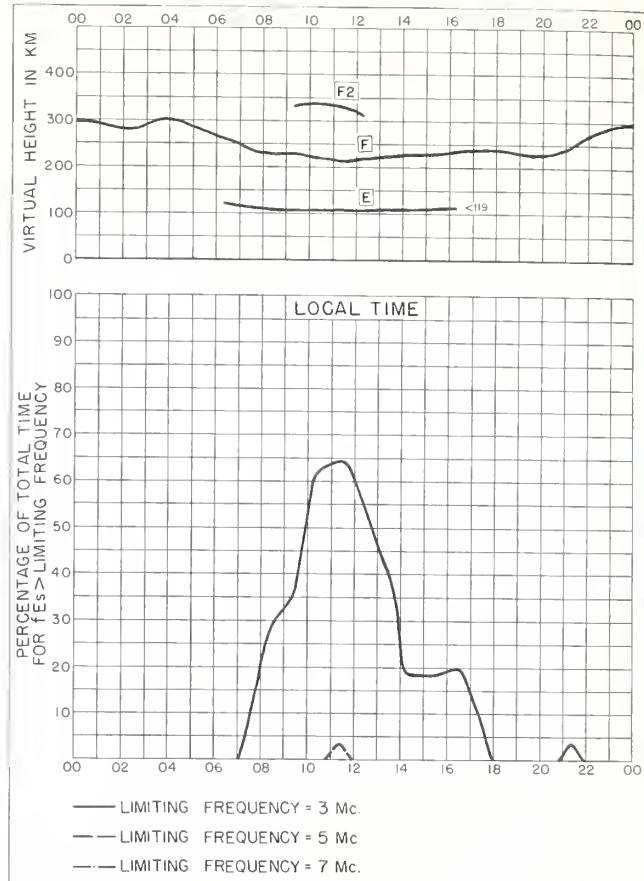
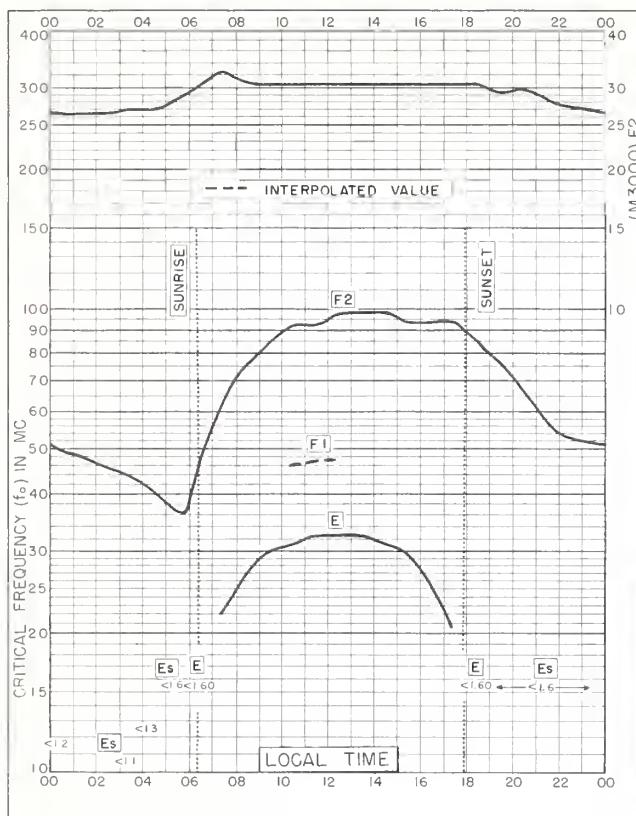


Fig. 78. GODHAVN, GREENLAND MARCH 1960





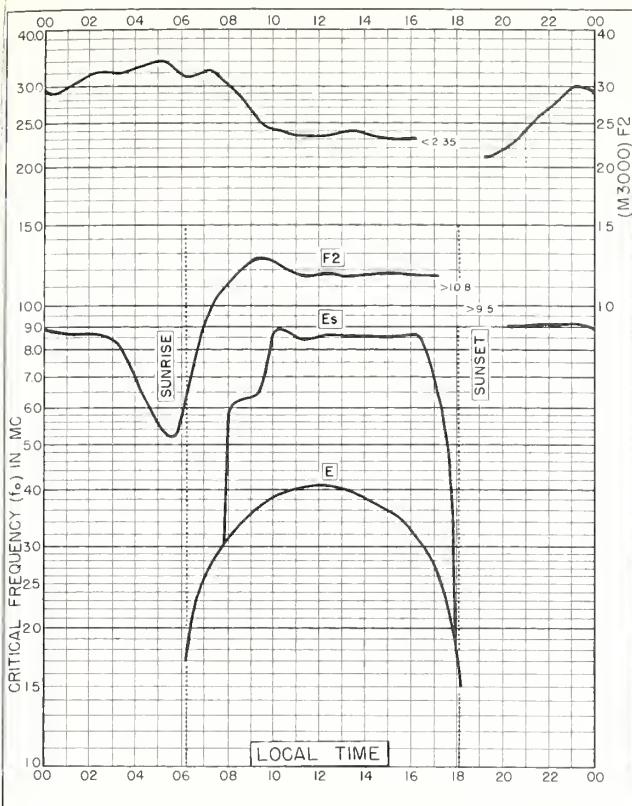


Fig. 87. IBADAN, NIGERIA

7.4°N, 3.9°E

MARCH 1960

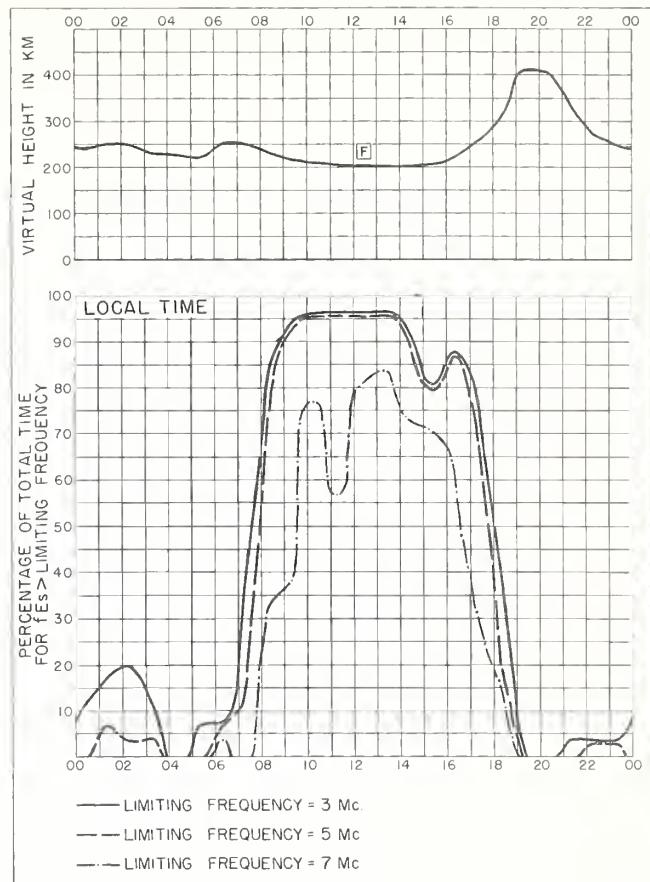


Fig. 88. IBADAN, NIGERIA

MARCH 1960

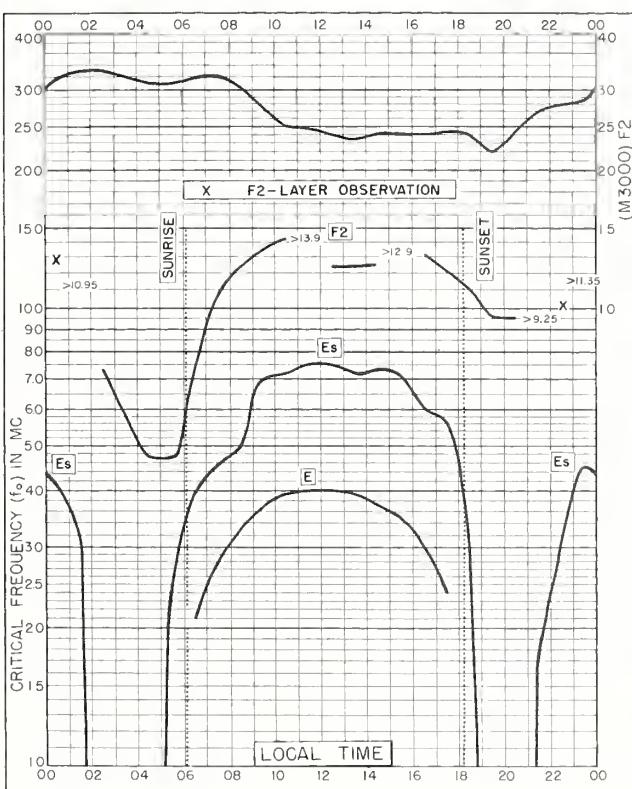


Fig. 89. LA PAZ, BOLIVIA

16.5°S, 68.1°W

MARCH 1960

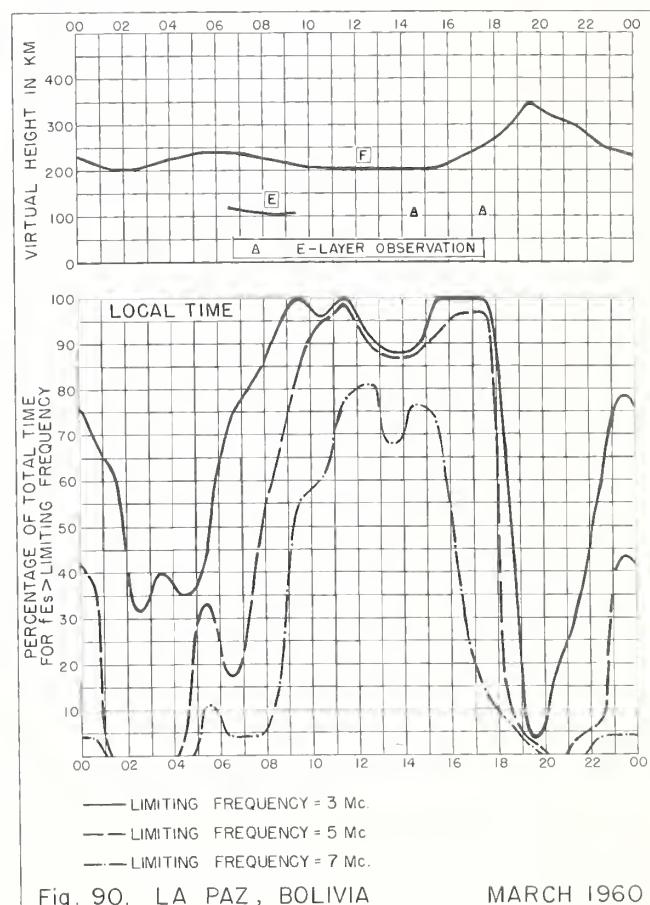


Fig. 90. LA PAZ, BOLIVIA

MARCH 1960

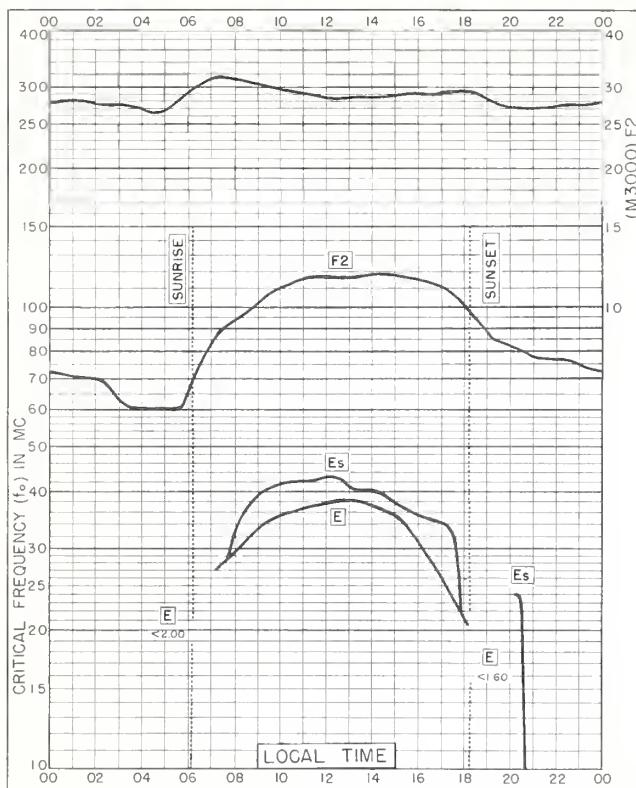


Fig. 91. BRISBANE, AUSTRALIA
27.5°S, 152.9°E MARCH 1960

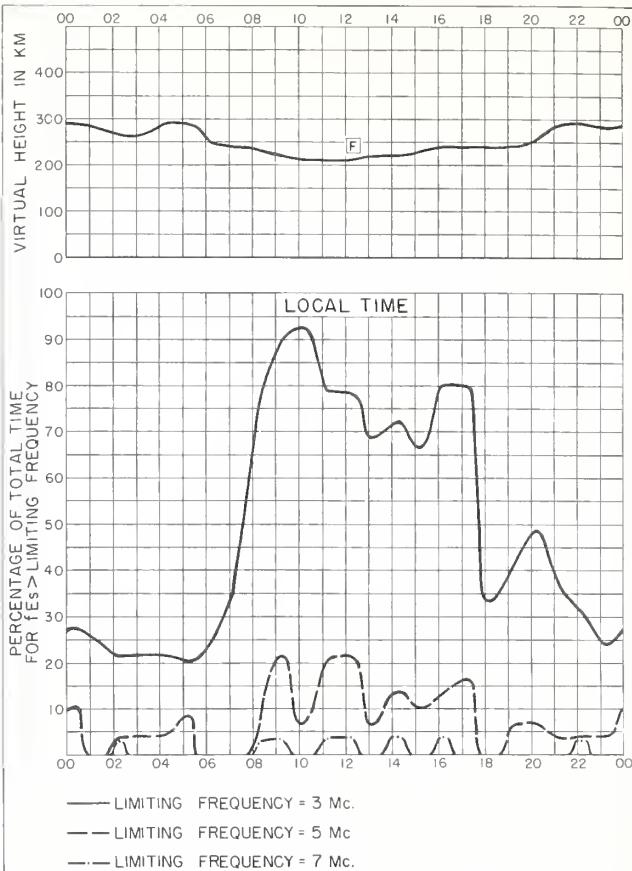


Fig. 92. BRISBANE, AUSTRALIA MARCH 1960

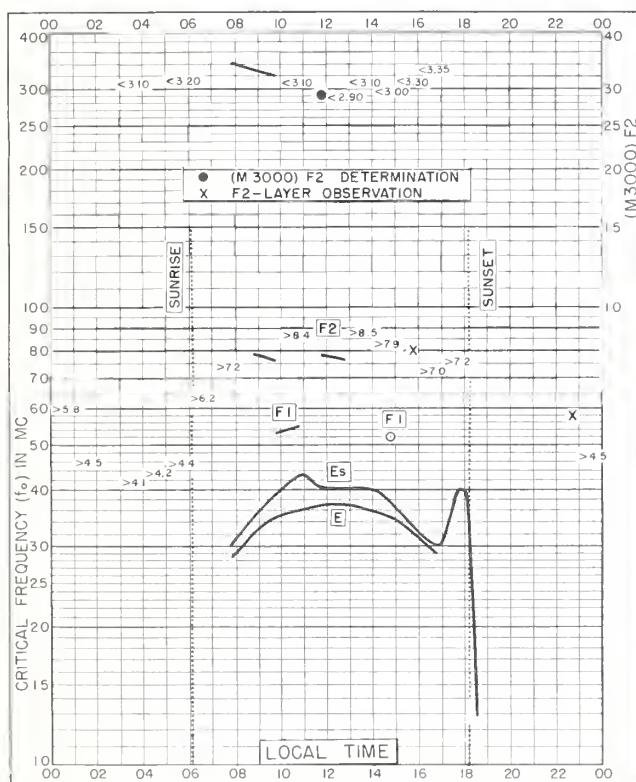


Fig. 93. MUNDARING, W. AUSTRALIA
32.0°S, 116.2°E MARCH 1960

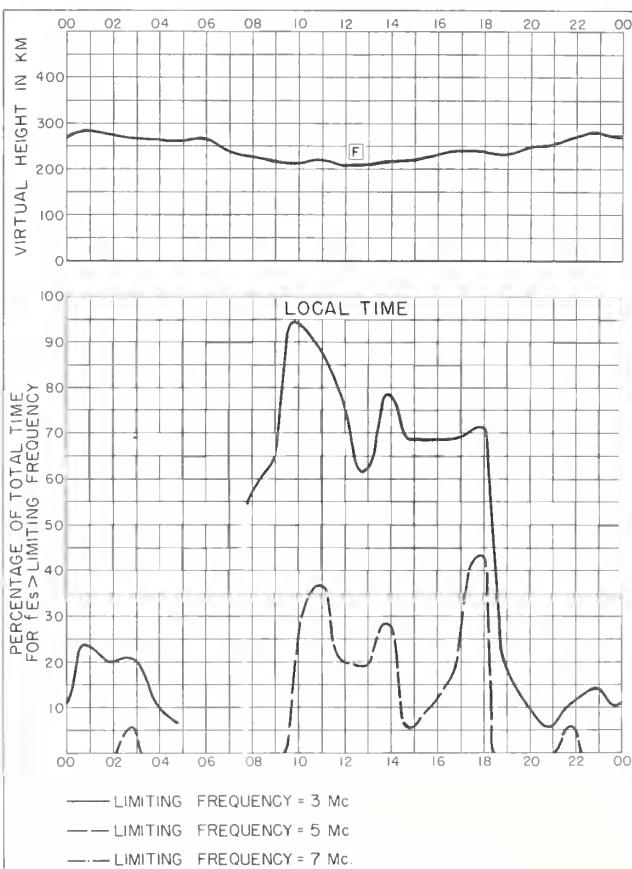


Fig. 94. MUNDARING, W. AUSTRALIA MARCH 1960



Fig. 95. CONCEPCION, CHILE
36.6°S, 73.0°W

MARCH 1960

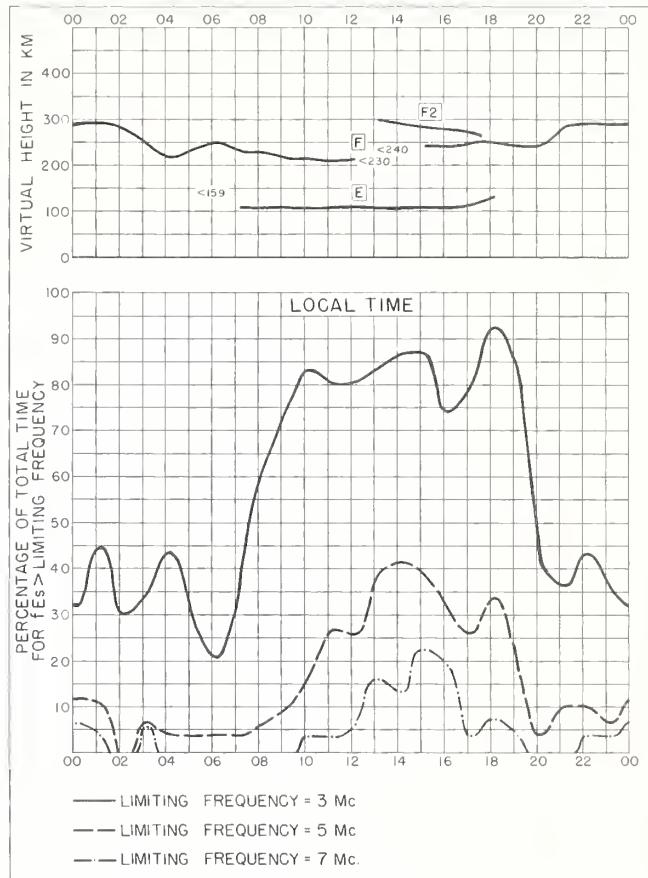


Fig. 96. CONCEPCION, CHILE MARCH 1960

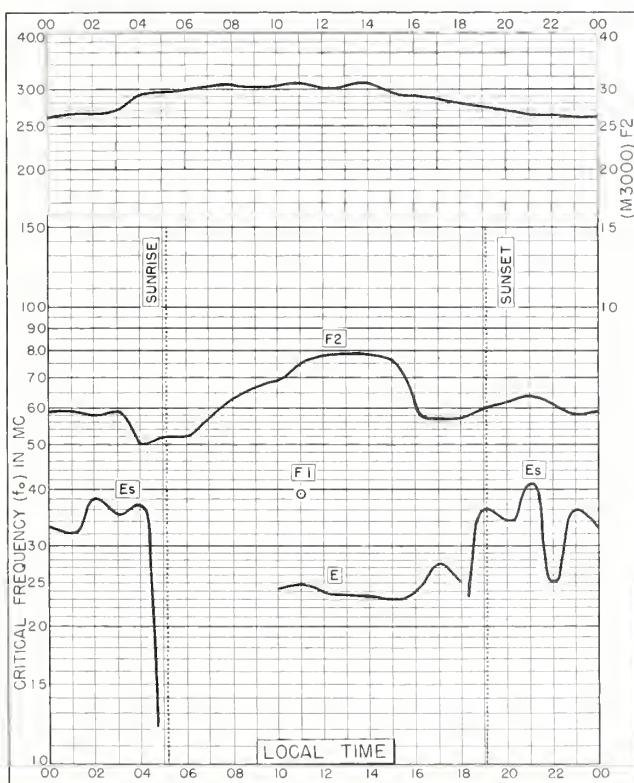


Fig. 97. BYRD STATION

80.0°S, 120.0°W

MARCH 1960

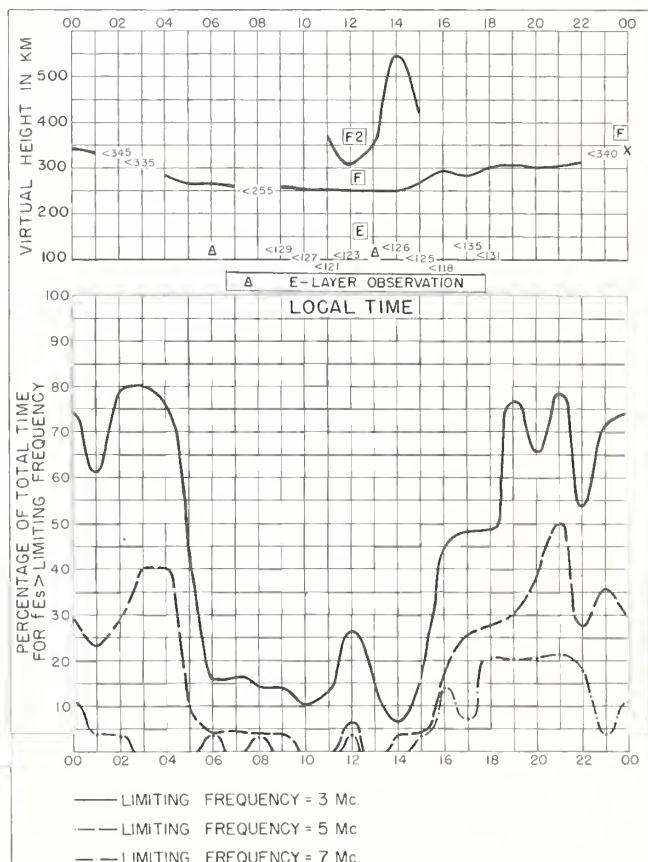


Fig. 98. BYRD STATION

MARCH 1960

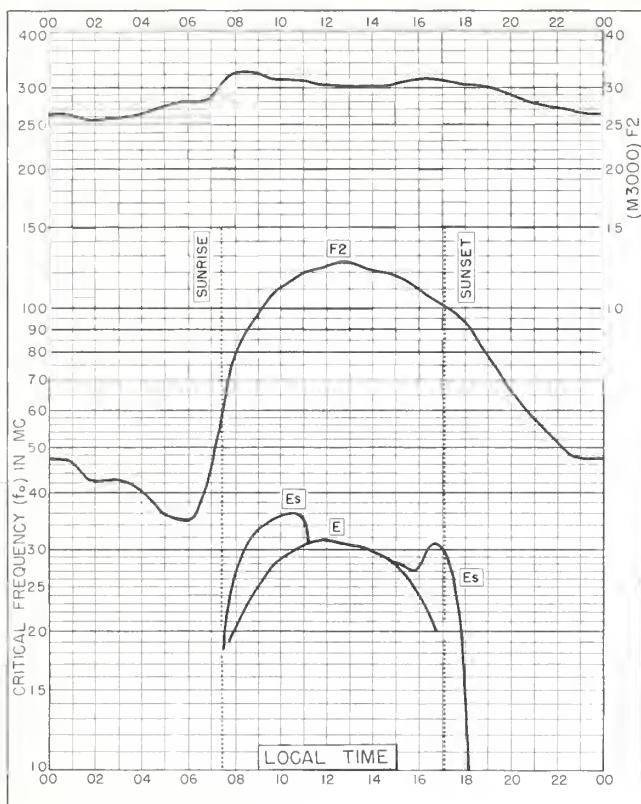


Fig. 99. LINDAU/HARZ, GERMANY
51.6°N, 10.1°E FEBRUARY 1960

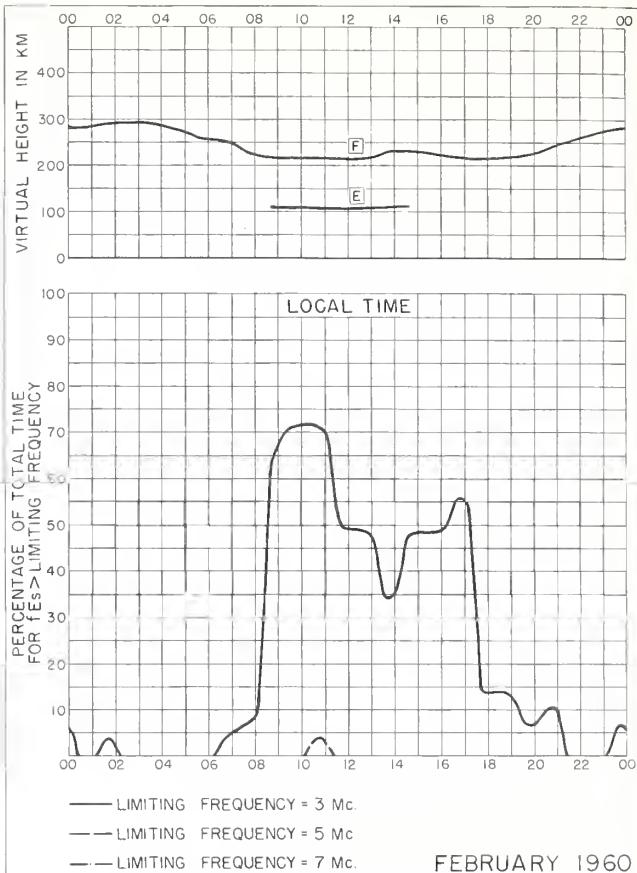


Fig. 100. LINDAU/HARZ, GERMANY FEBRUARY 1960

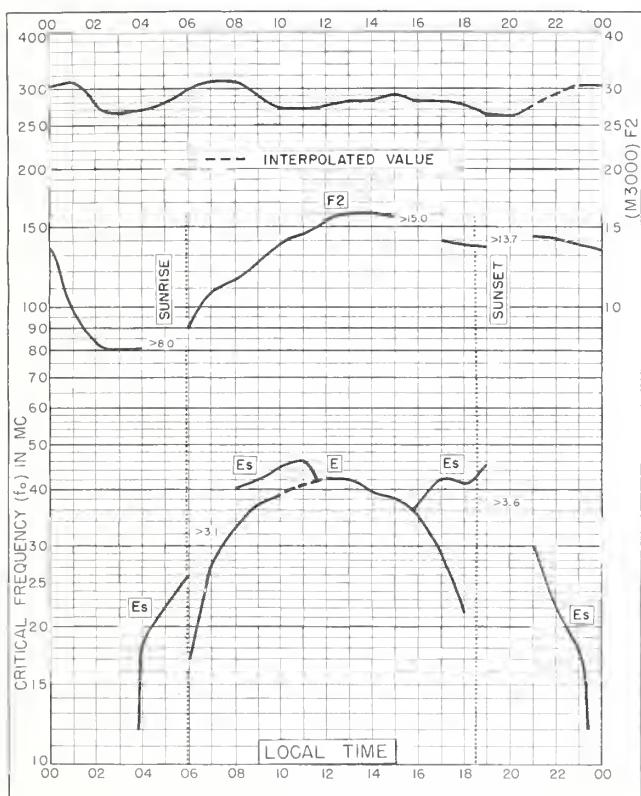


Fig. 101. TAHITI, SOCIETY IS.
17.7°S, 149.3°W FEBRUARY 1960

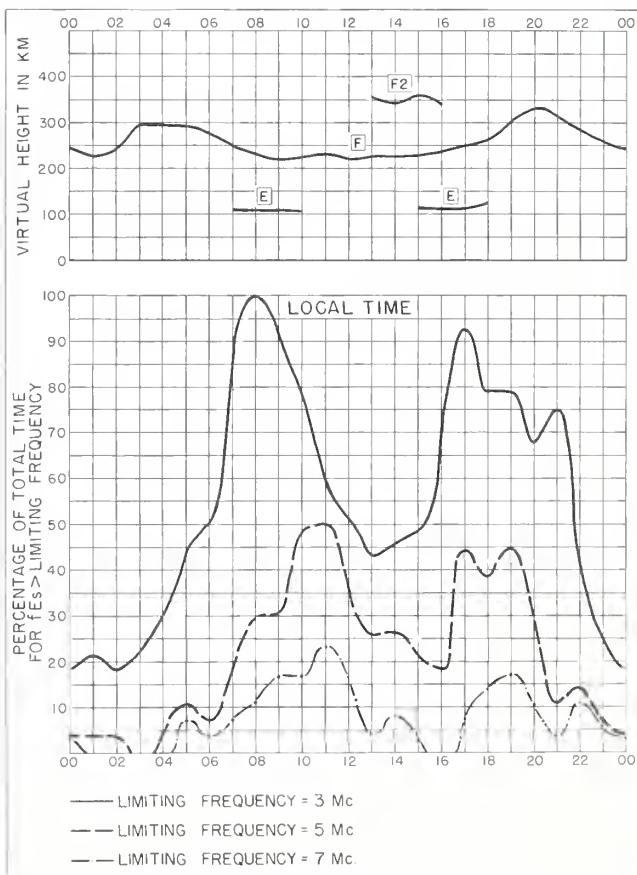
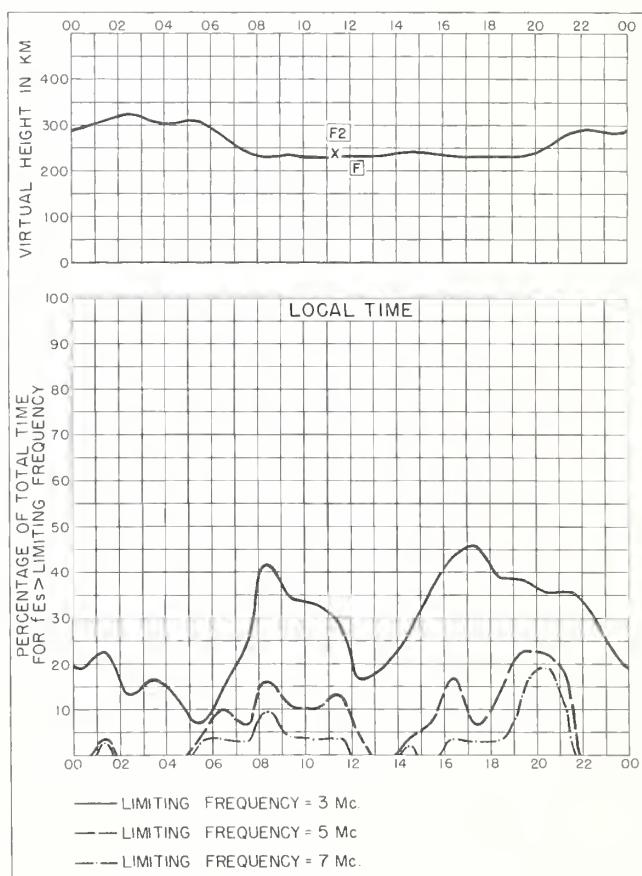
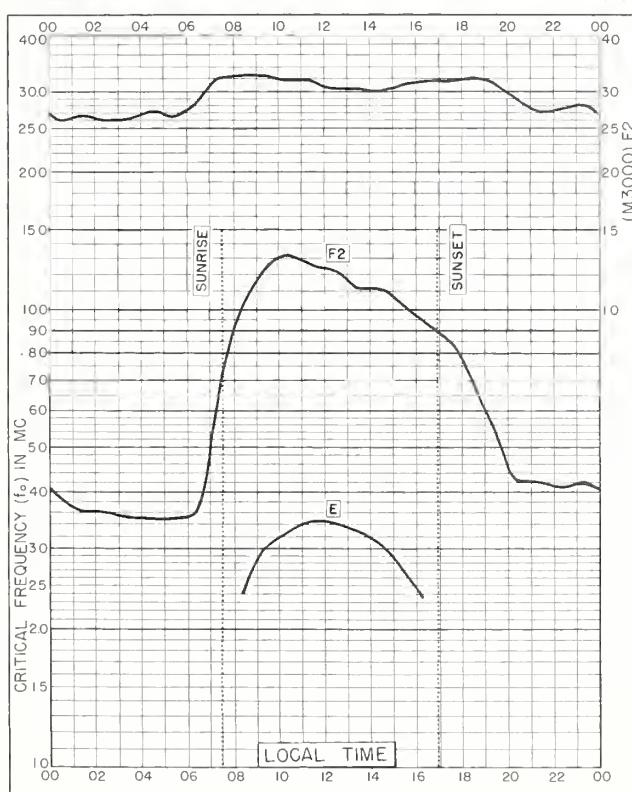
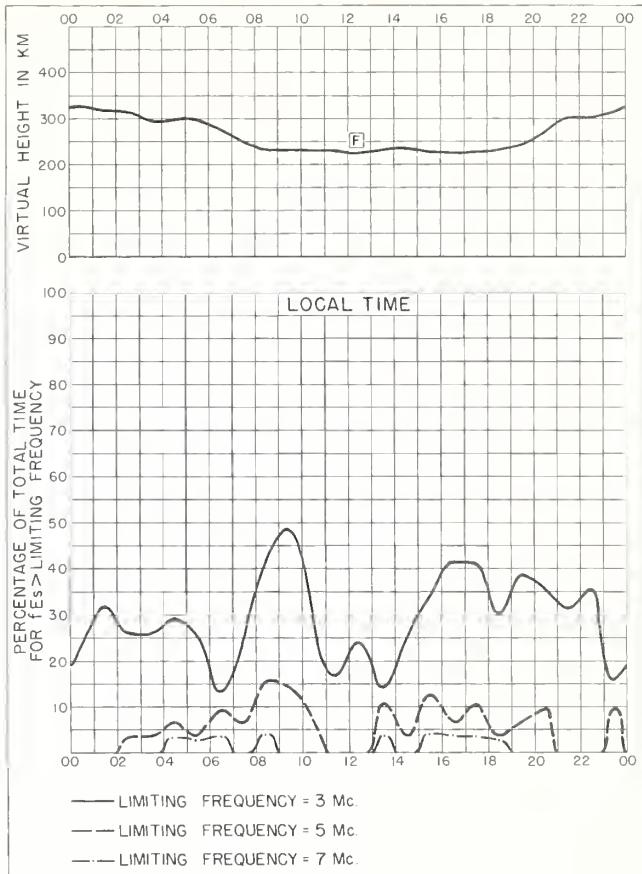
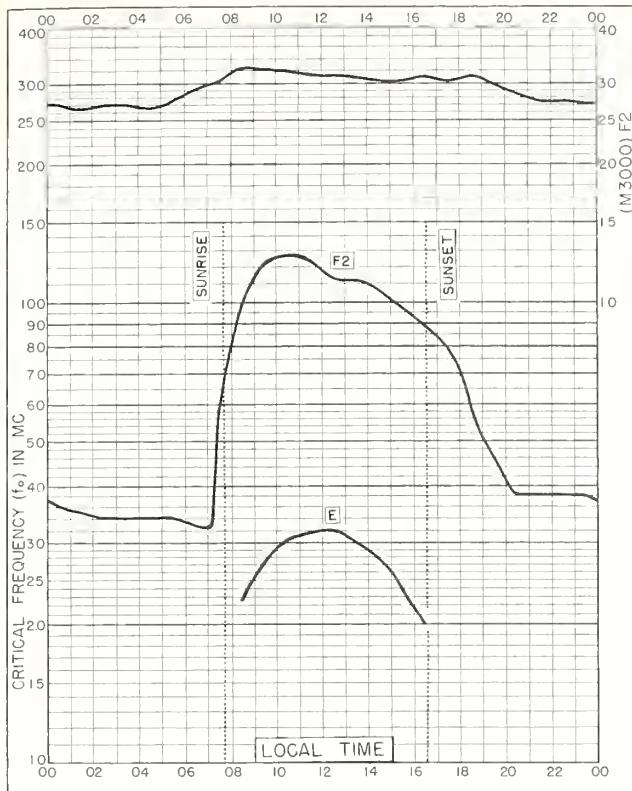


Fig. 102. TAHITI, SOCIETY IS. FEBRUARY 1960



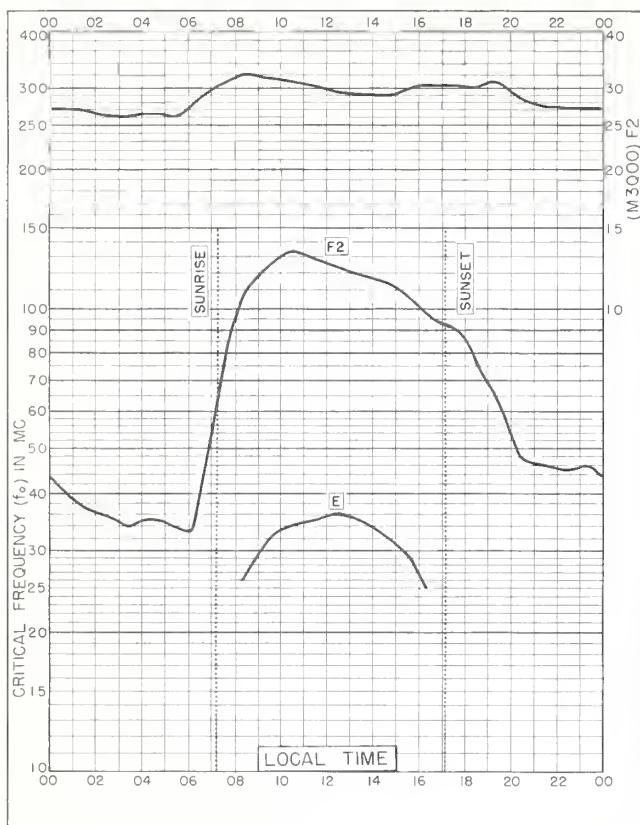


Fig. 107. TOKYO, JAPAN
35.7°N, 139.5°E JANUARY 1960

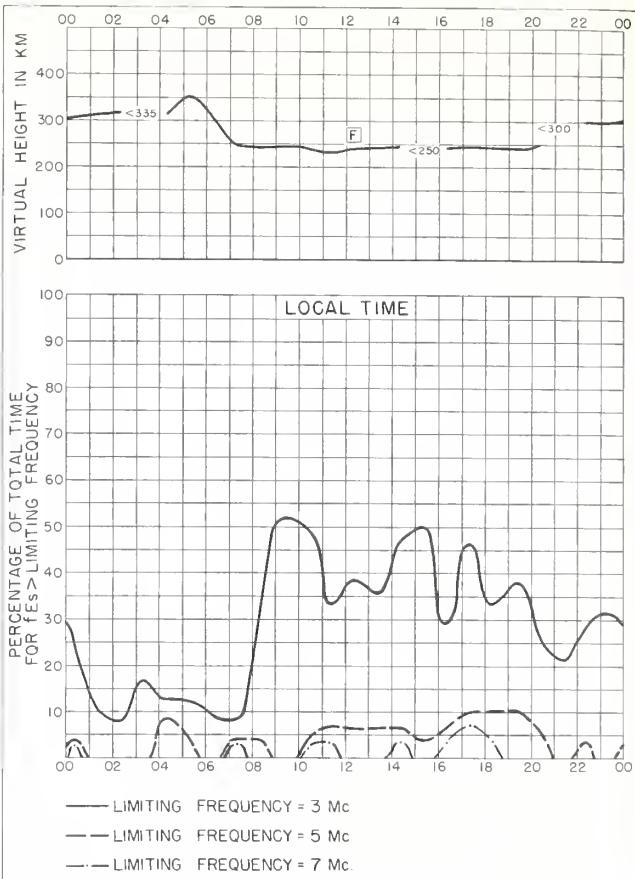


Fig. 108. TOKYO, JAPAN JANUARY 1960

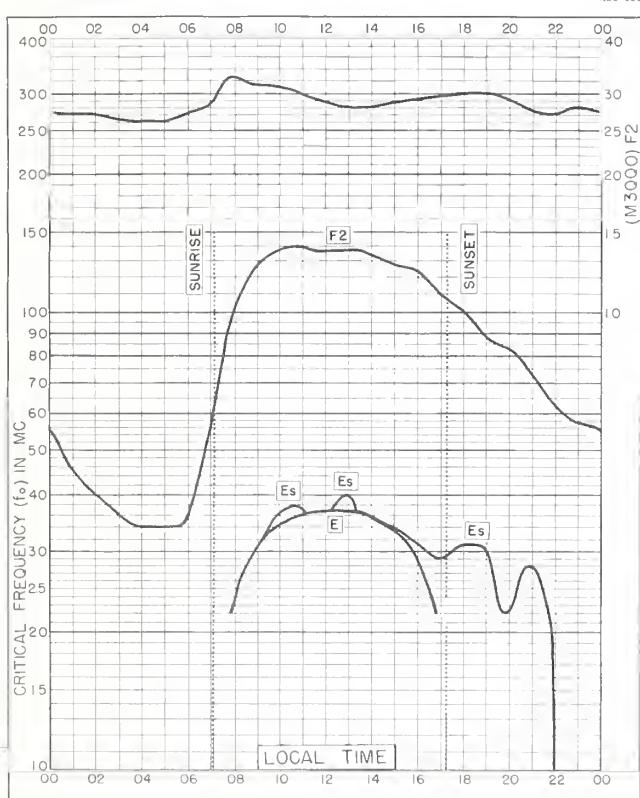


Fig. 109. YAMAGAWA, JAPAN
31.2°N, 130.6°E JANUARY 1960

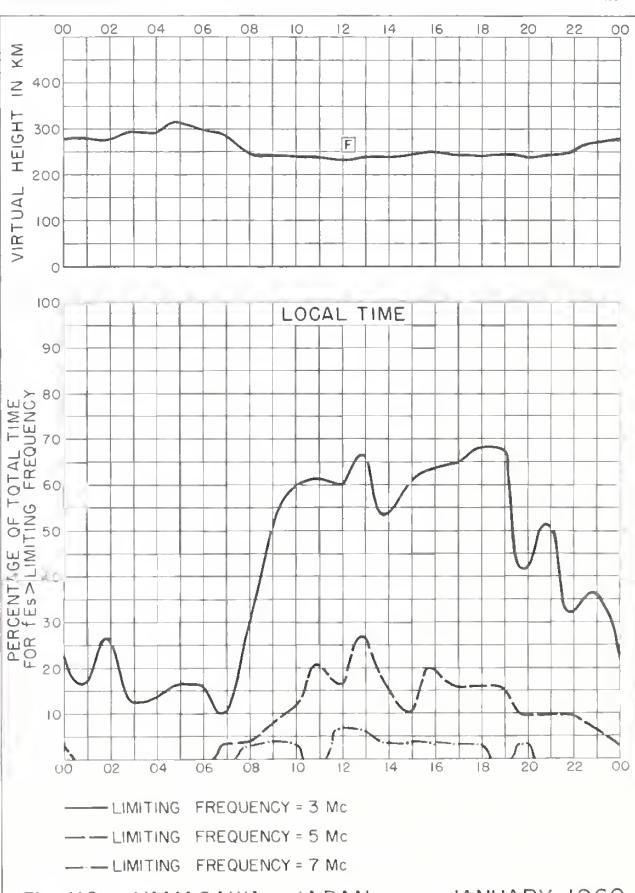


Fig. 110. YAMAGAWA, JAPAN JANUARY 1960

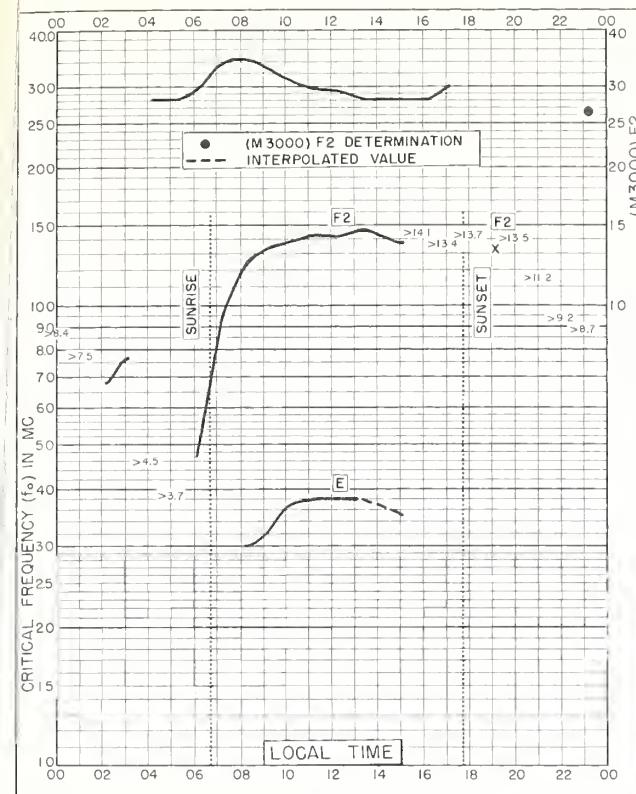


Fig. III. DELHI, INDIA
28.6°N, 77.2°E FEBRUARY 1959

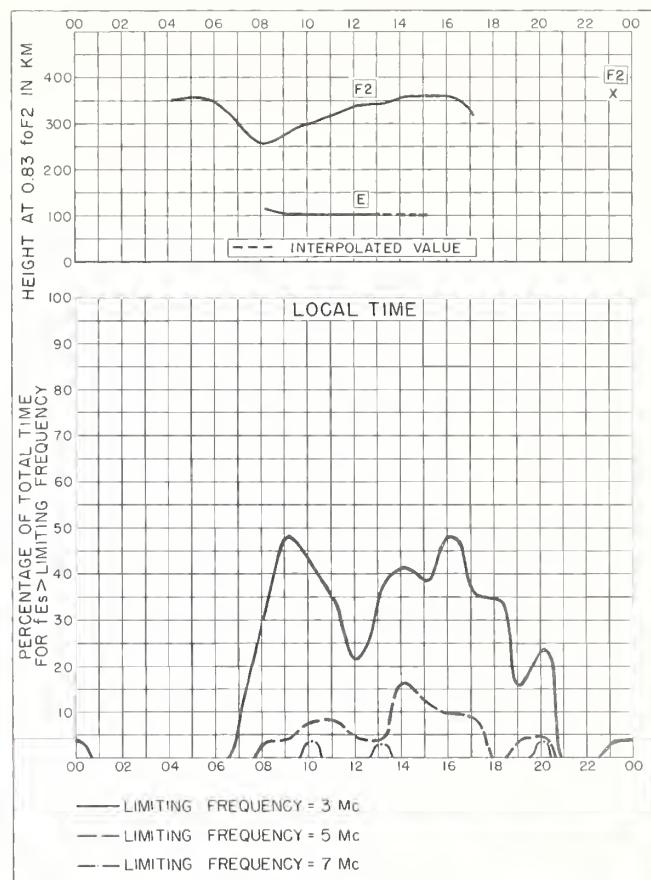


Fig. II2. DELHI, INDIA FEBRUARY 1959

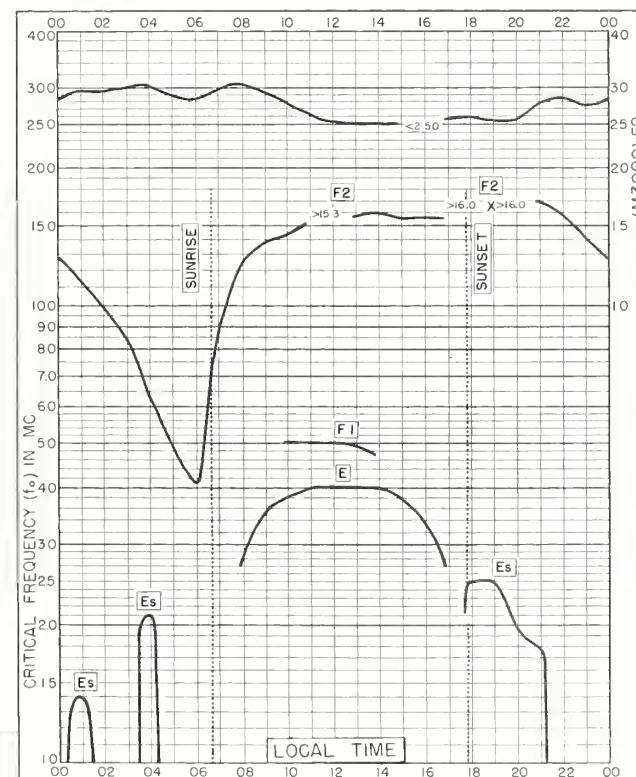


Fig. II3. AHMEDABAD, INDIA
23.0°N, 72.6°E FEBRUARY 1959

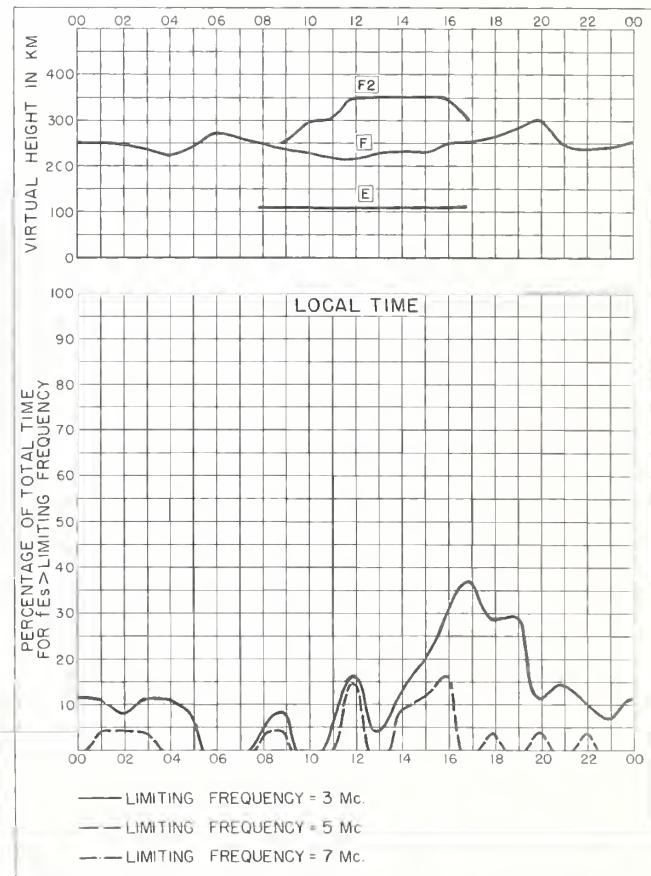


Fig. II4. AHMEDABAD, INDIA FEBRUARY 1959

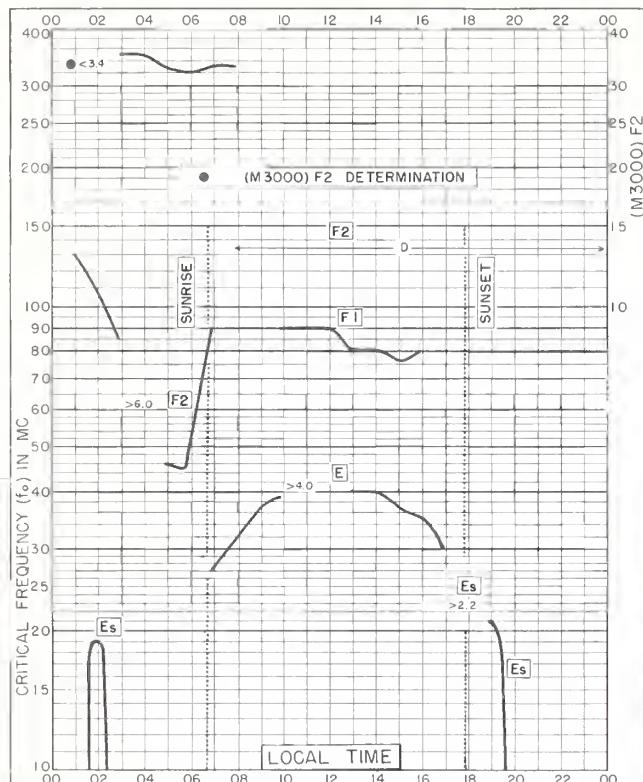


Fig. II5. CALCUTTA, INDIA
23.0°N, 88.6°E FEBRUARY 1959

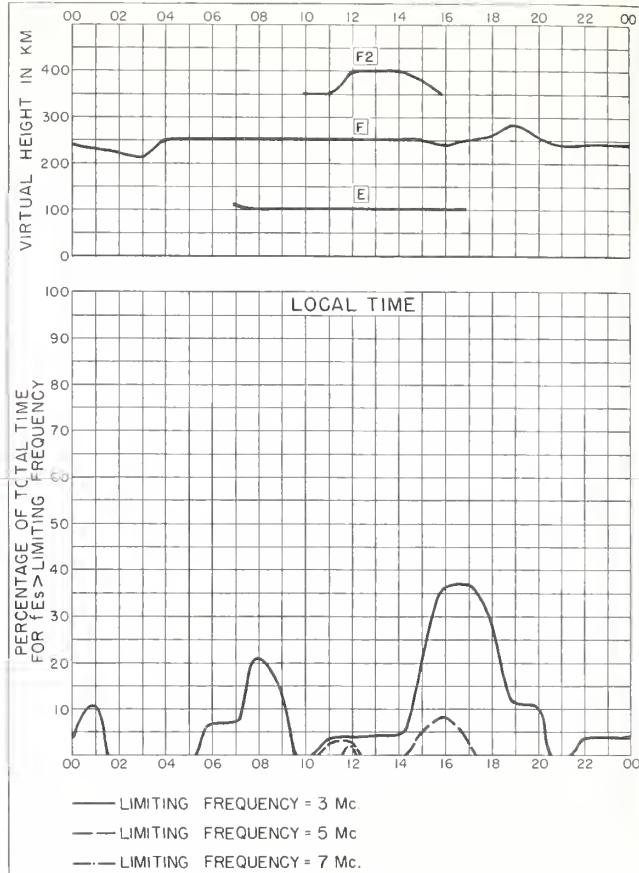


Fig. II6. CALCUTTA, INDIA FEBRUARY 1959

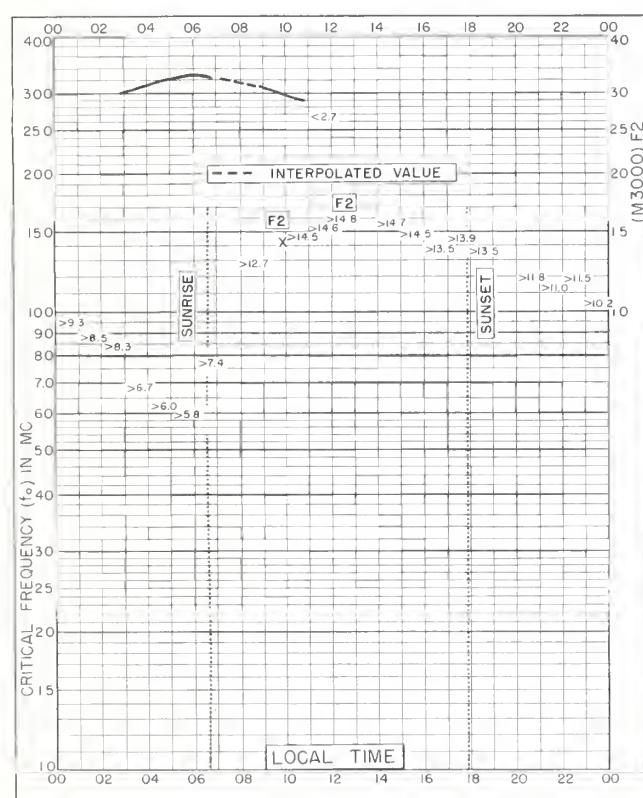


Fig. II7. BOMBAY, INDIA
19.0°N, 72.8°E FEBRUARY 1959

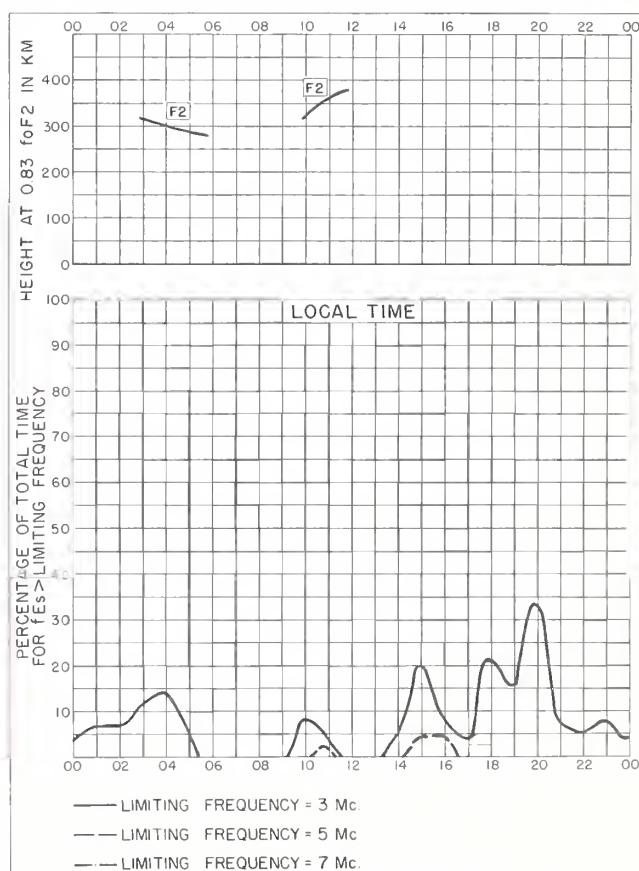


Fig. II8. BOMBAY, INDIA FEBRUARY 1959

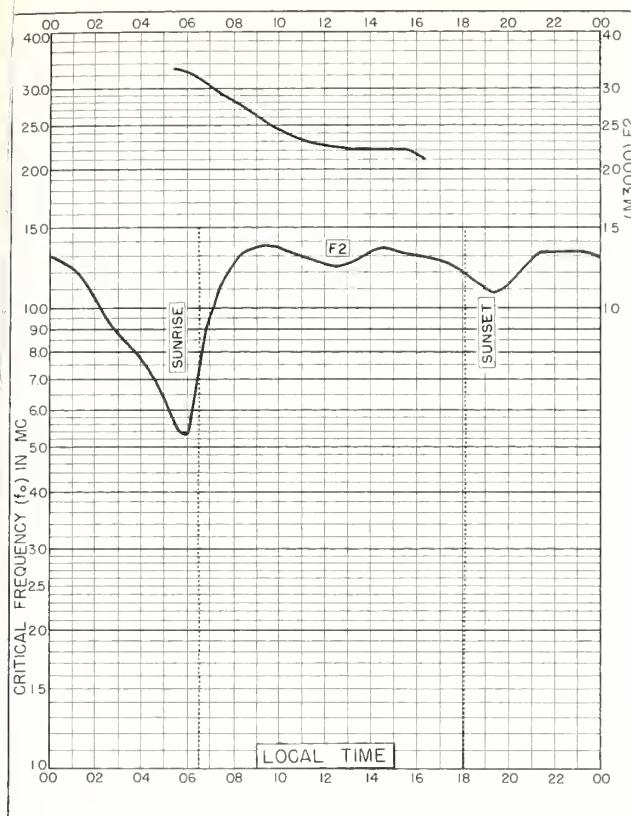


Fig. 119. MADRAS, INDIA
13.1°N, 80.3°E FEBRUARY 1959

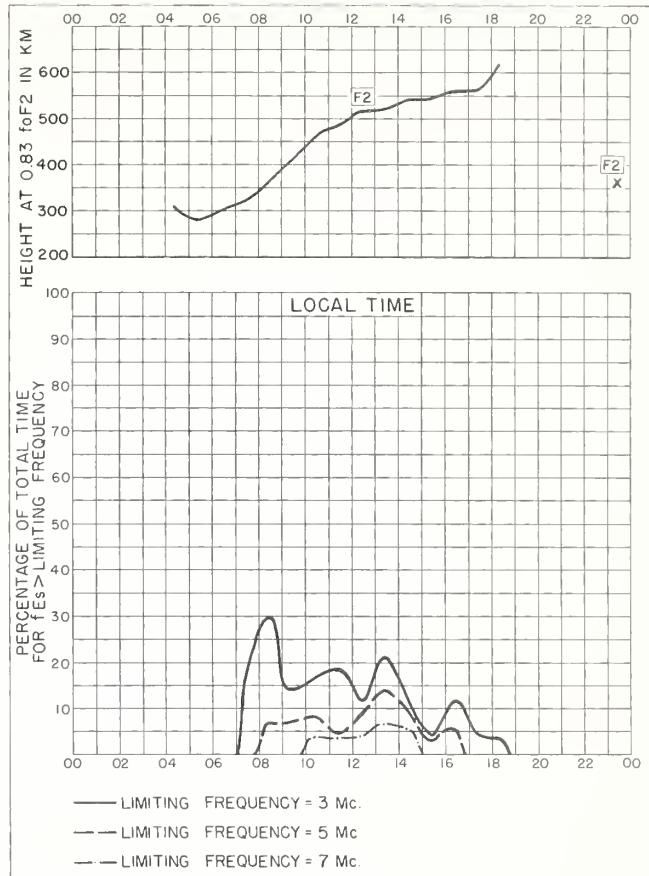


Fig. 120. MADRAS, INDIA FEBRUARY 1959

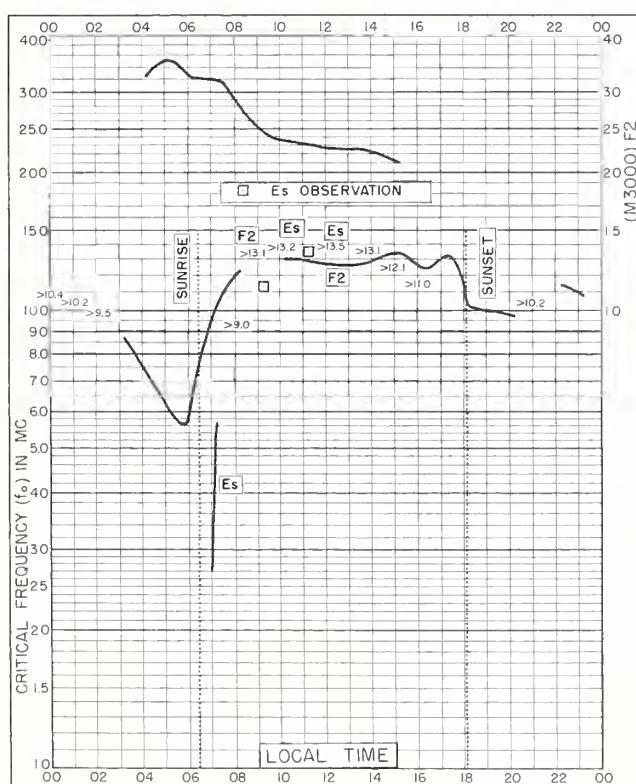


Fig. 121. TIRUCHY, INDIA
10.8°N, 78.7°E FEBRUARY 1959

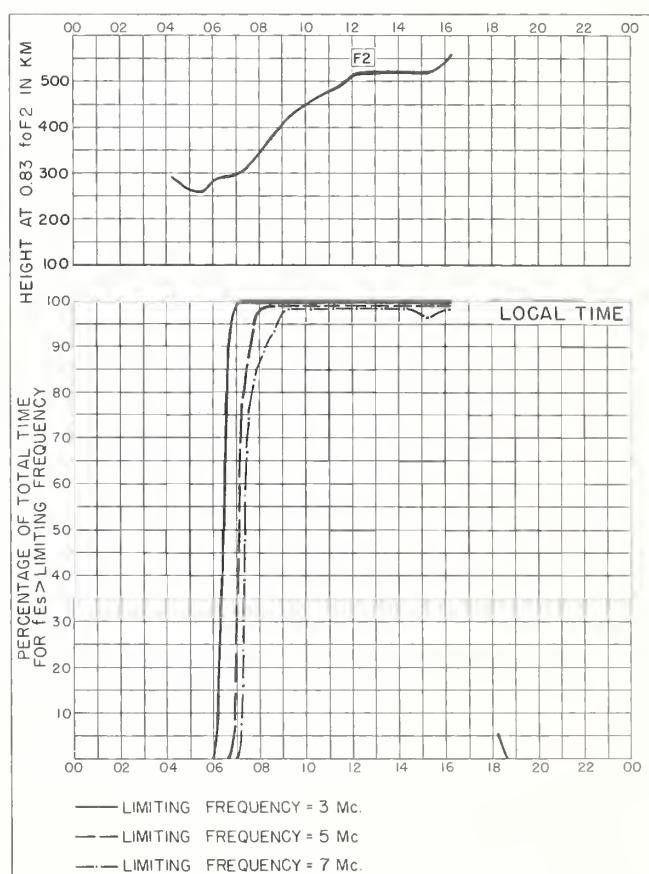
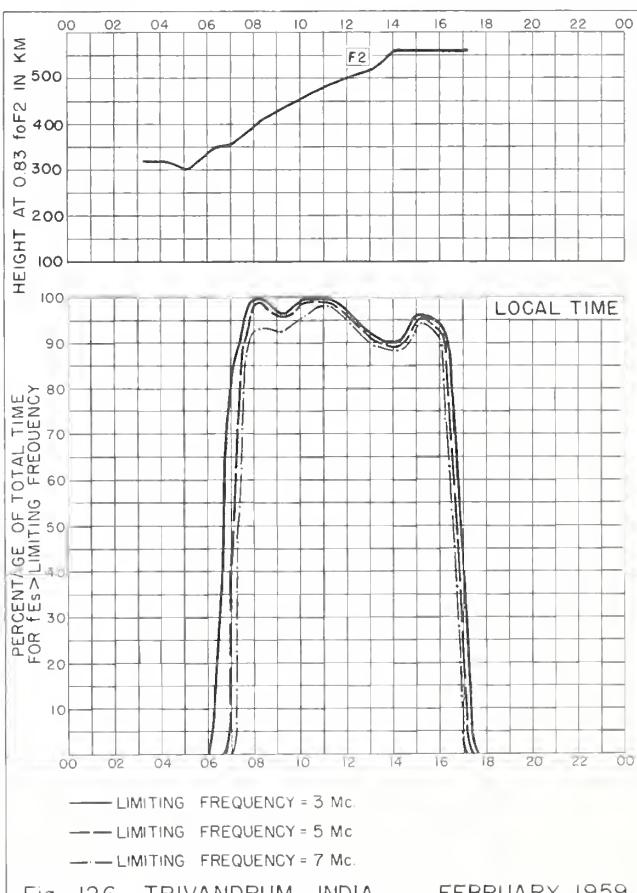
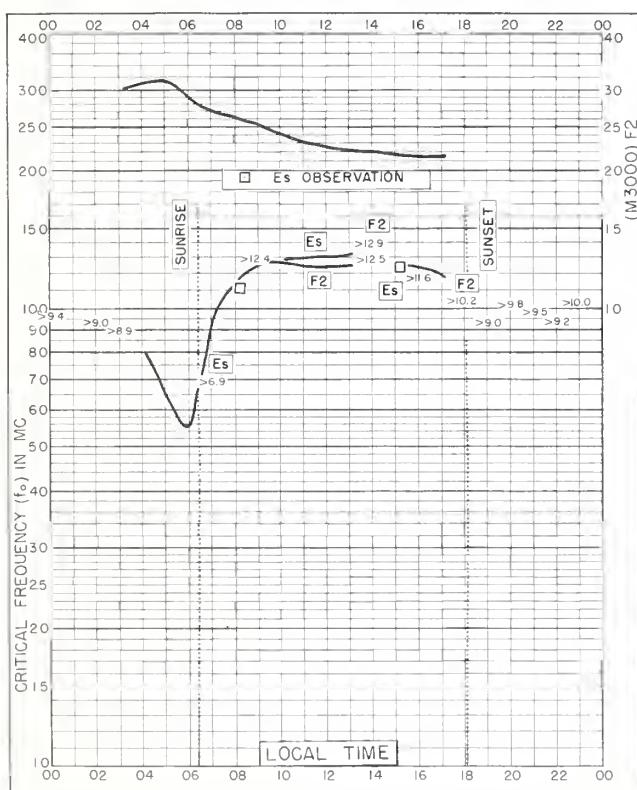
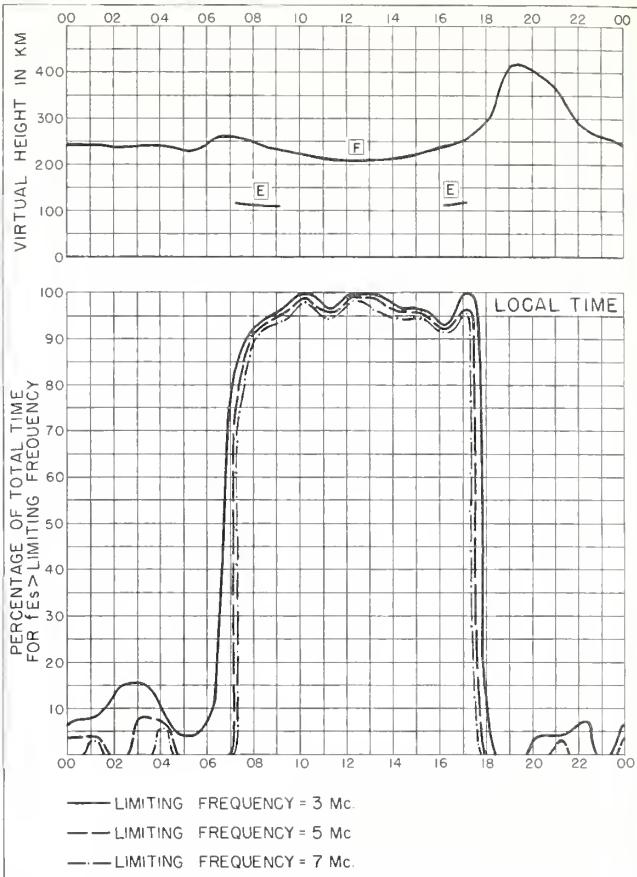
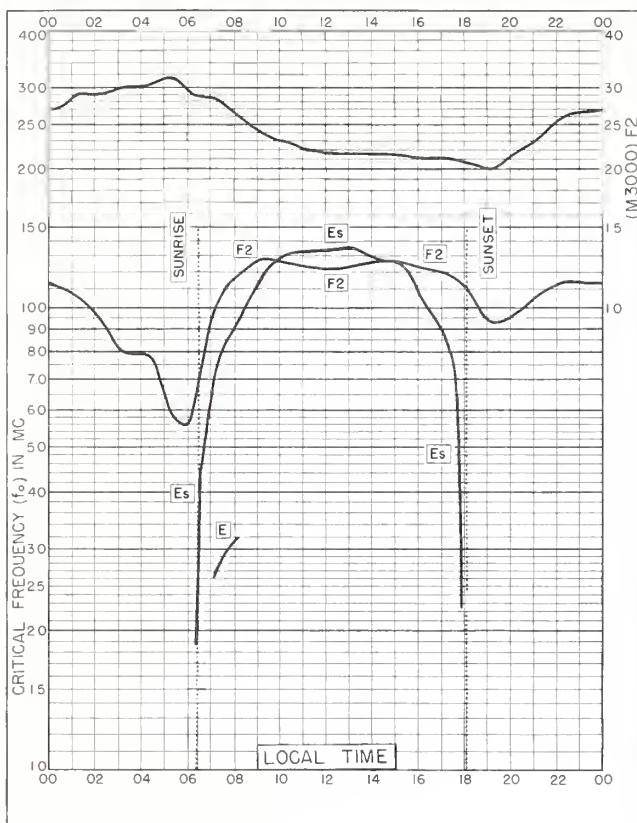


Fig. 122. TIRUCHY, INDIA FEBRUARY 1959



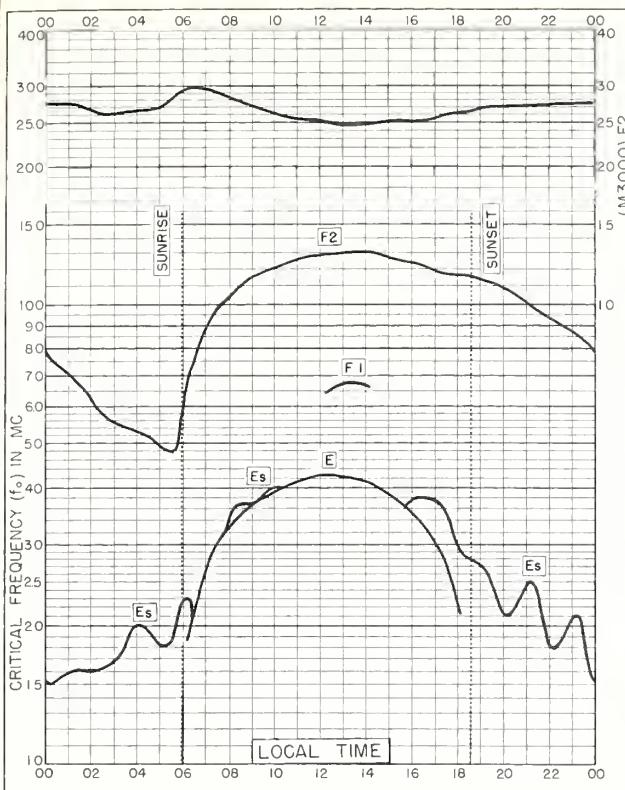


Fig. 127. TSUMEB, SOUTH W. AFRICA
19.2°S, 17.7°E FEBRUARY 1959

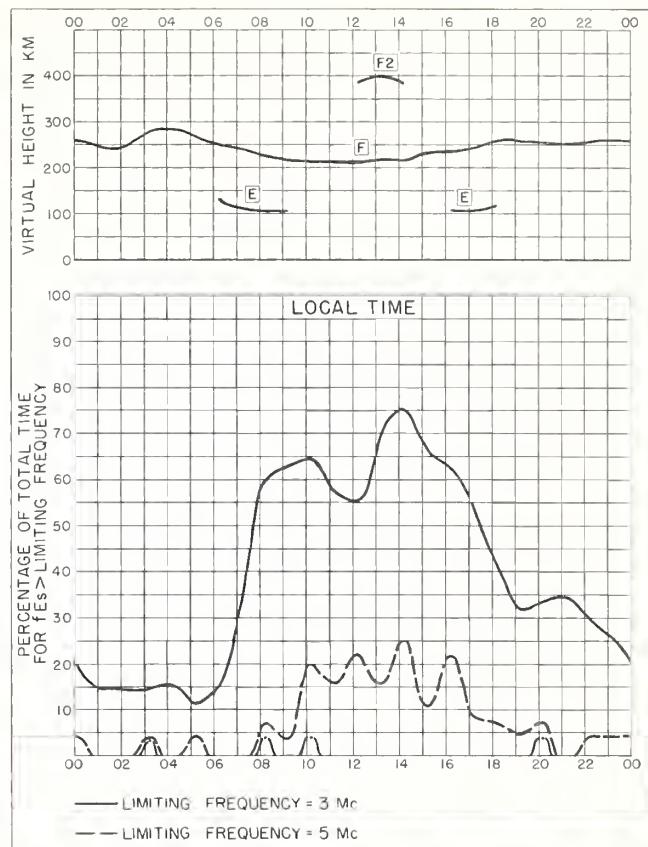


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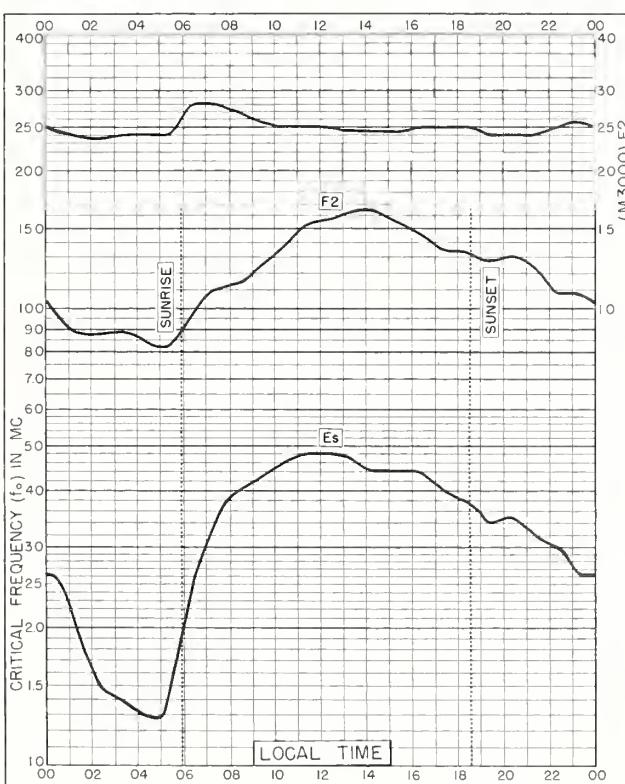


Fig. 129. RAROTONGA I.
21.2°S, 159.8°W FEBRUARY 1959

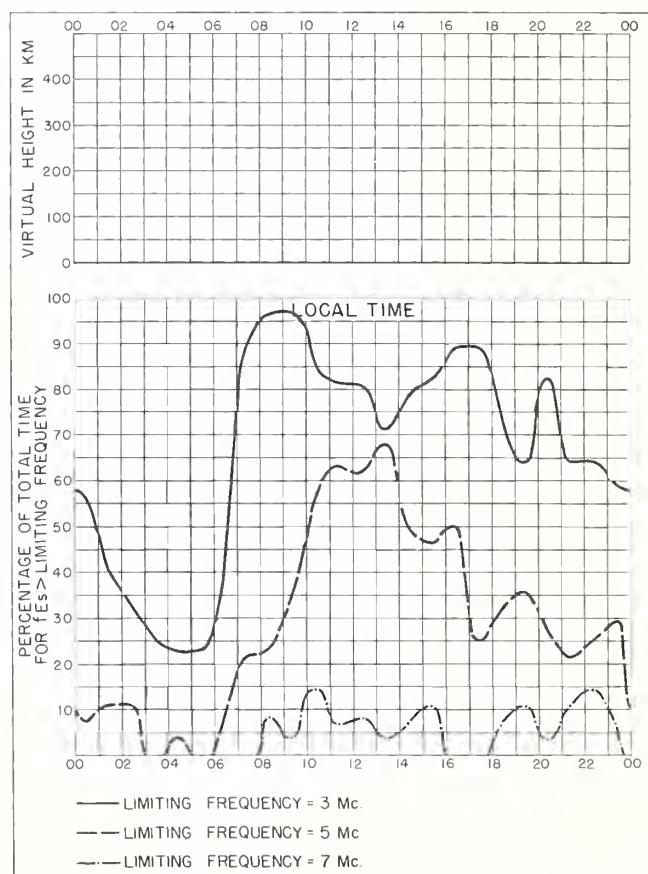


Fig. 130. RAROTONGA I. FEBRUARY 1959

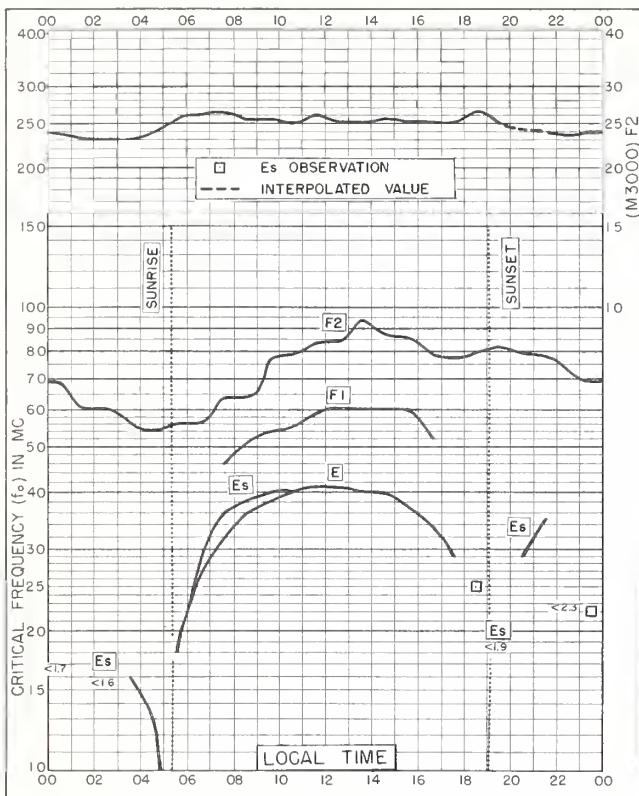


Fig. 131. CHRISTCHURCH, NEW ZEALAND
43.6°S, 172.8°E FEBRUARY 1959

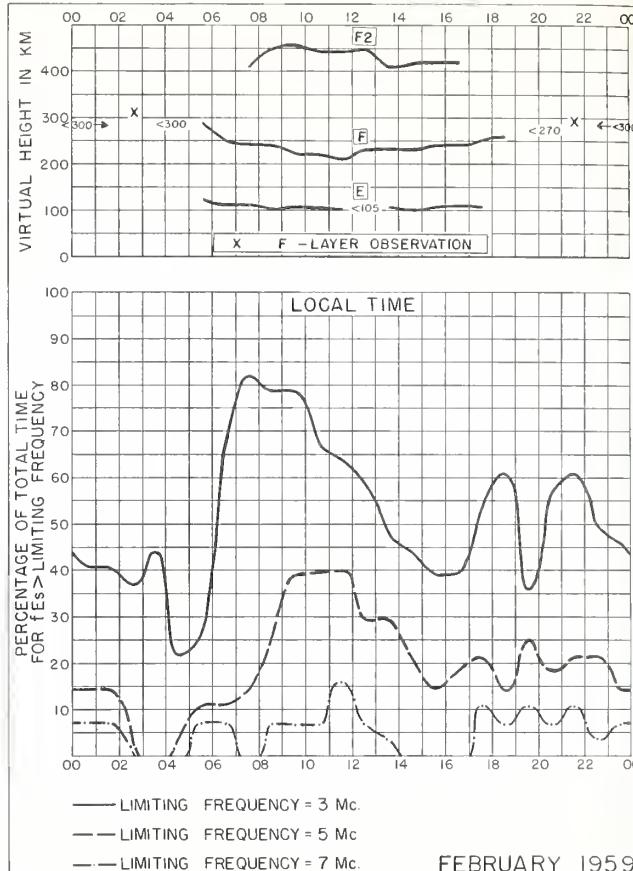


Fig. 132. CHRISTCHURCH, NEW ZEALAND



Fig. 133. CAMPBELL I.
52.5°S, 169.2°E FEBRUARY 1959

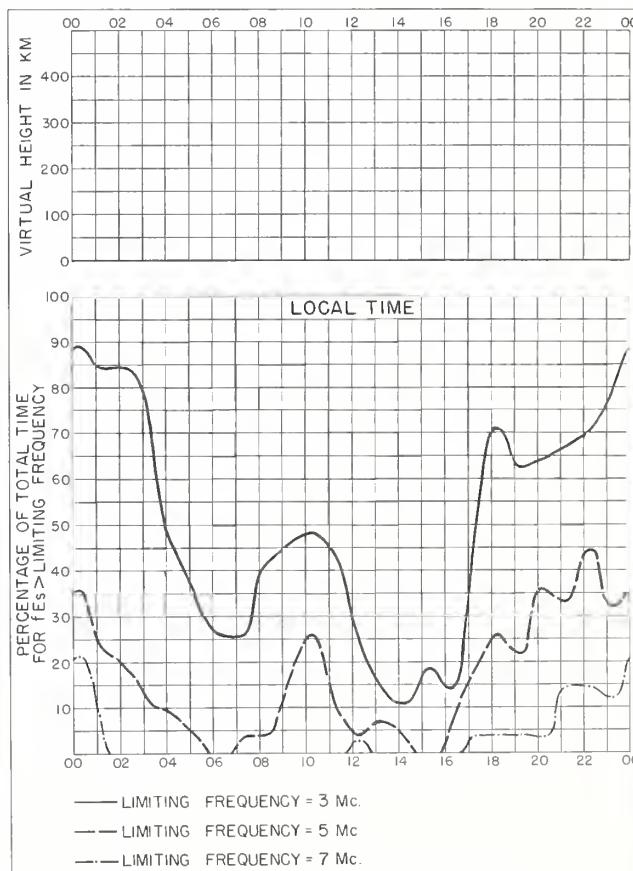
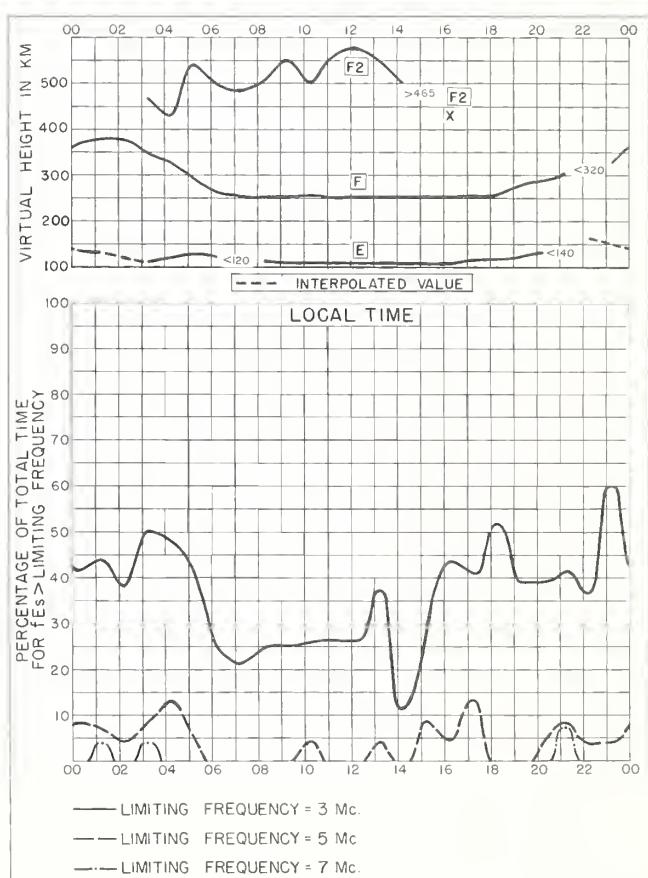
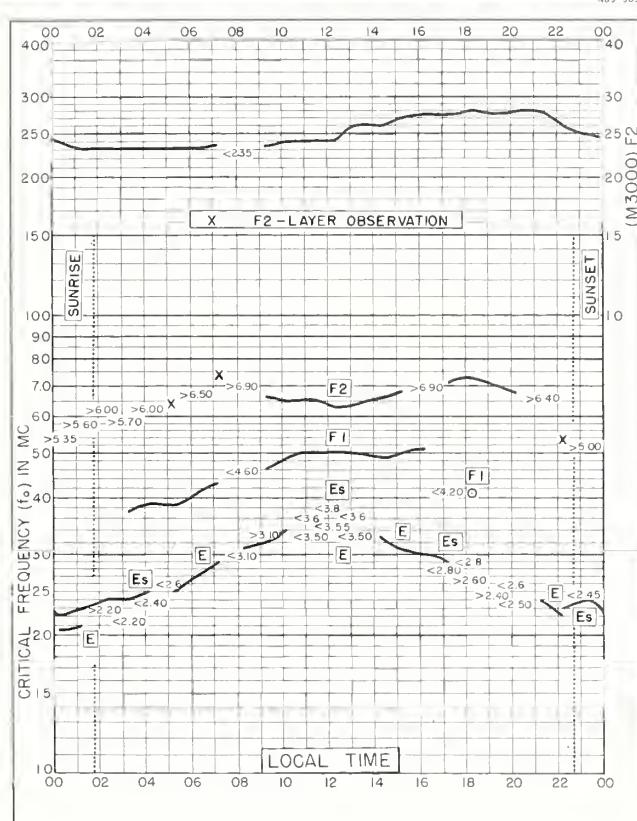
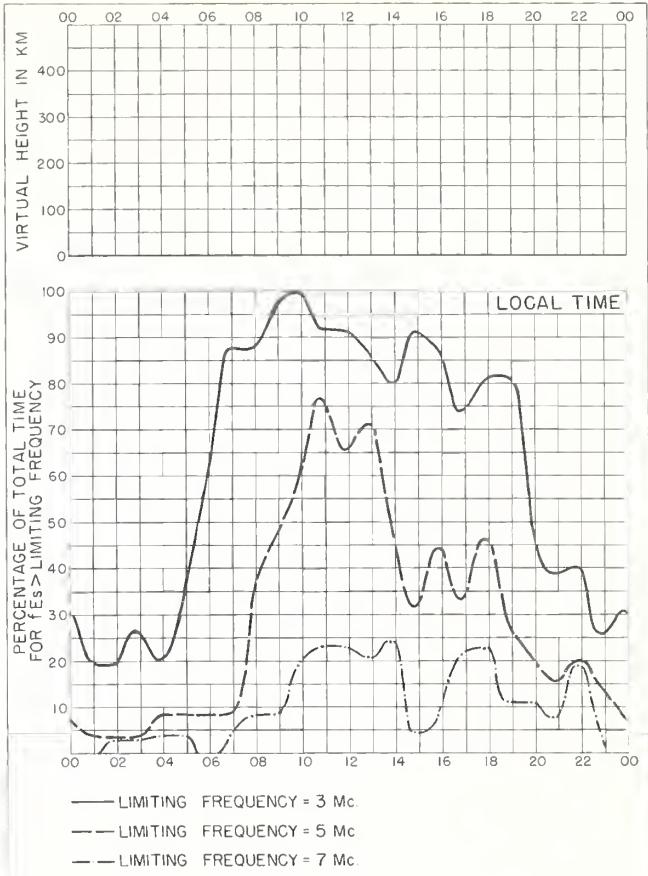
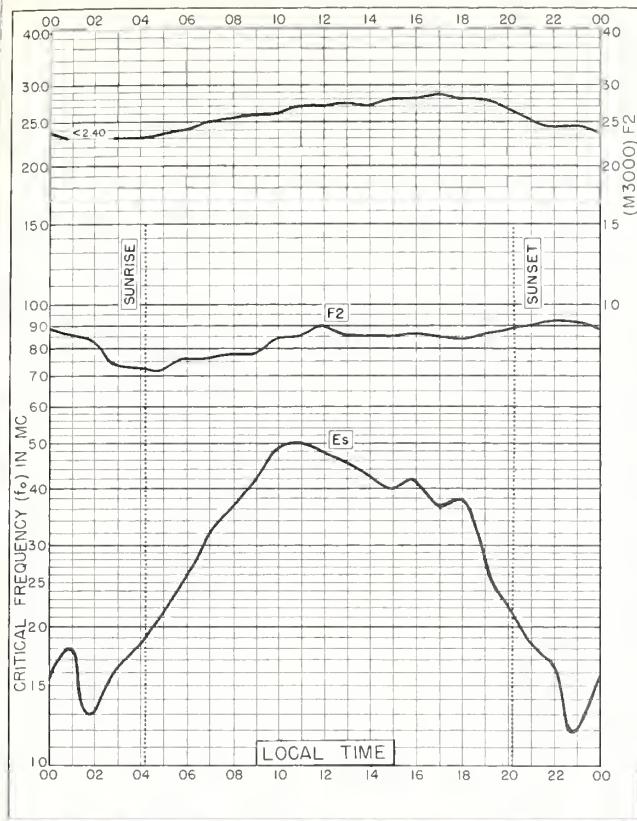


Fig. 134. CAMPBELL I. FEBRUARY 1959



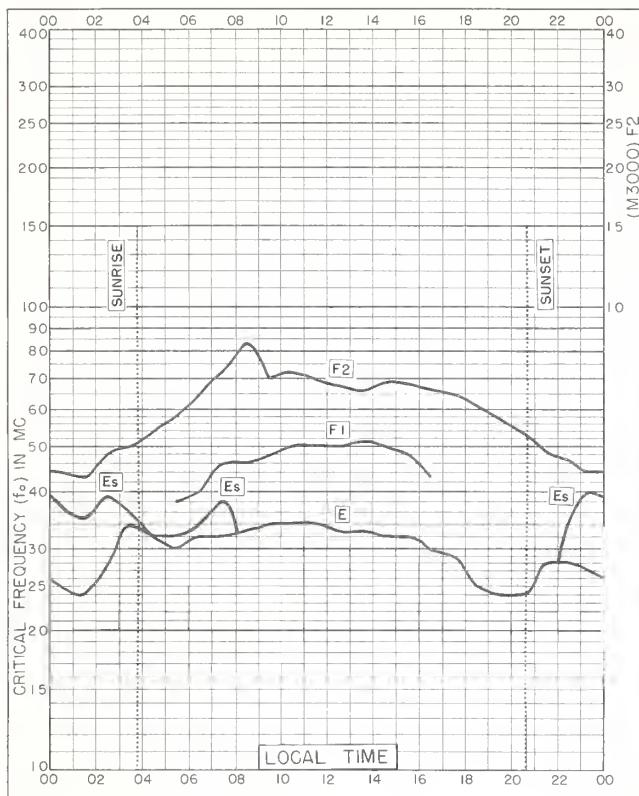


Fig. 139. SOYA (JAPANESE SHIP)
68.5°S, 37.0°E FEBRUARY 1957

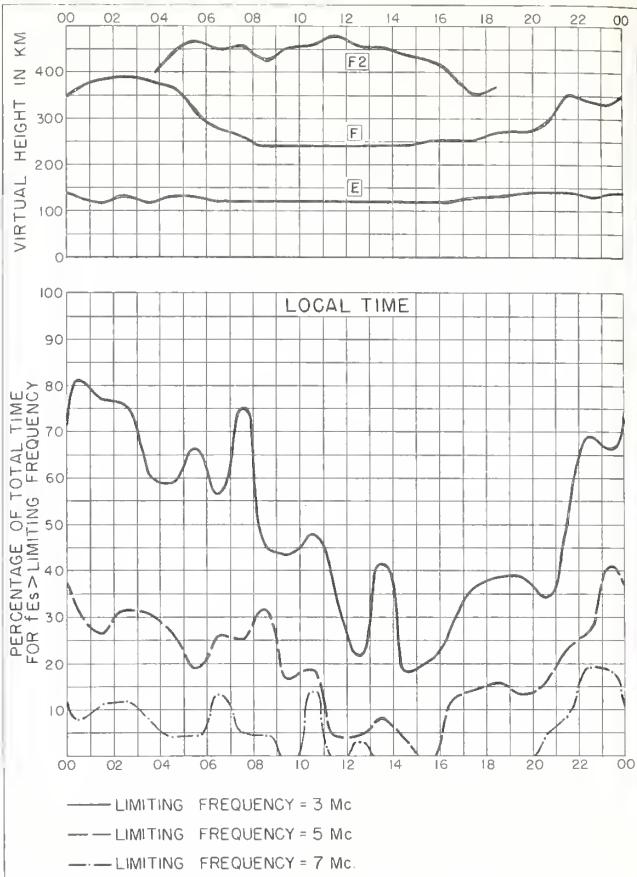


Fig. 140. SOYA (JAPANESE SHIP) FEBRUARY 1957

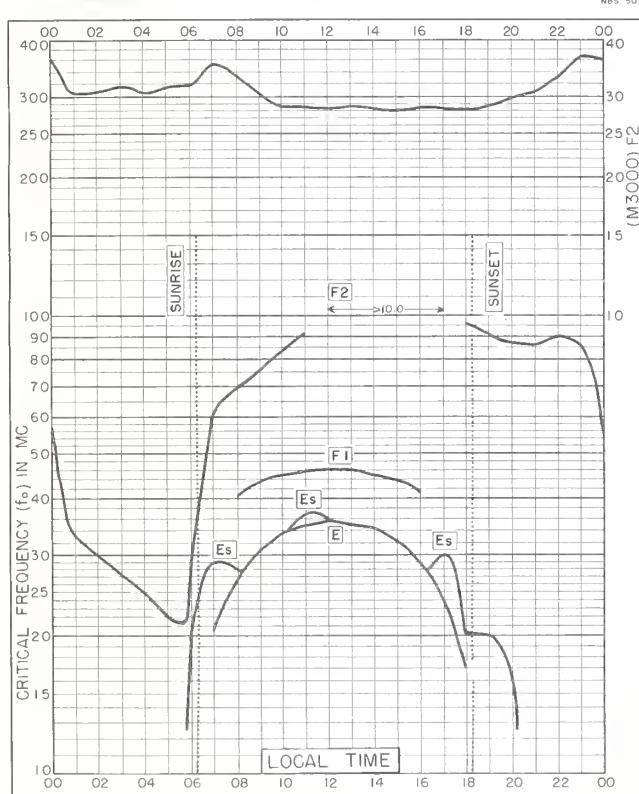


Fig. 141. LWIRO, BELGIAN CONGO
2.3°S, 28.8°E FEBRUARY 1955

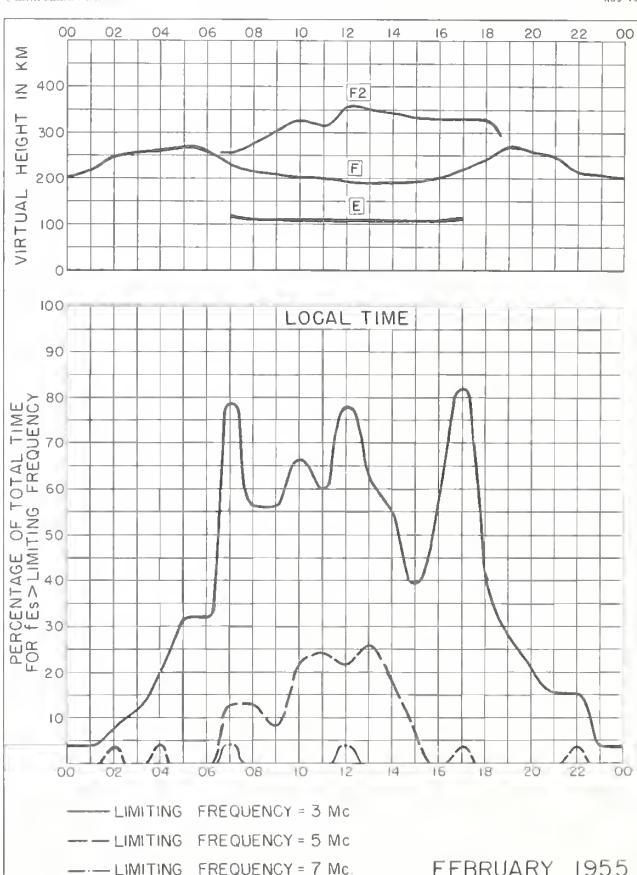


Fig. 142. LWIRO, BELGIAN CONGO FEBRUARY 1955

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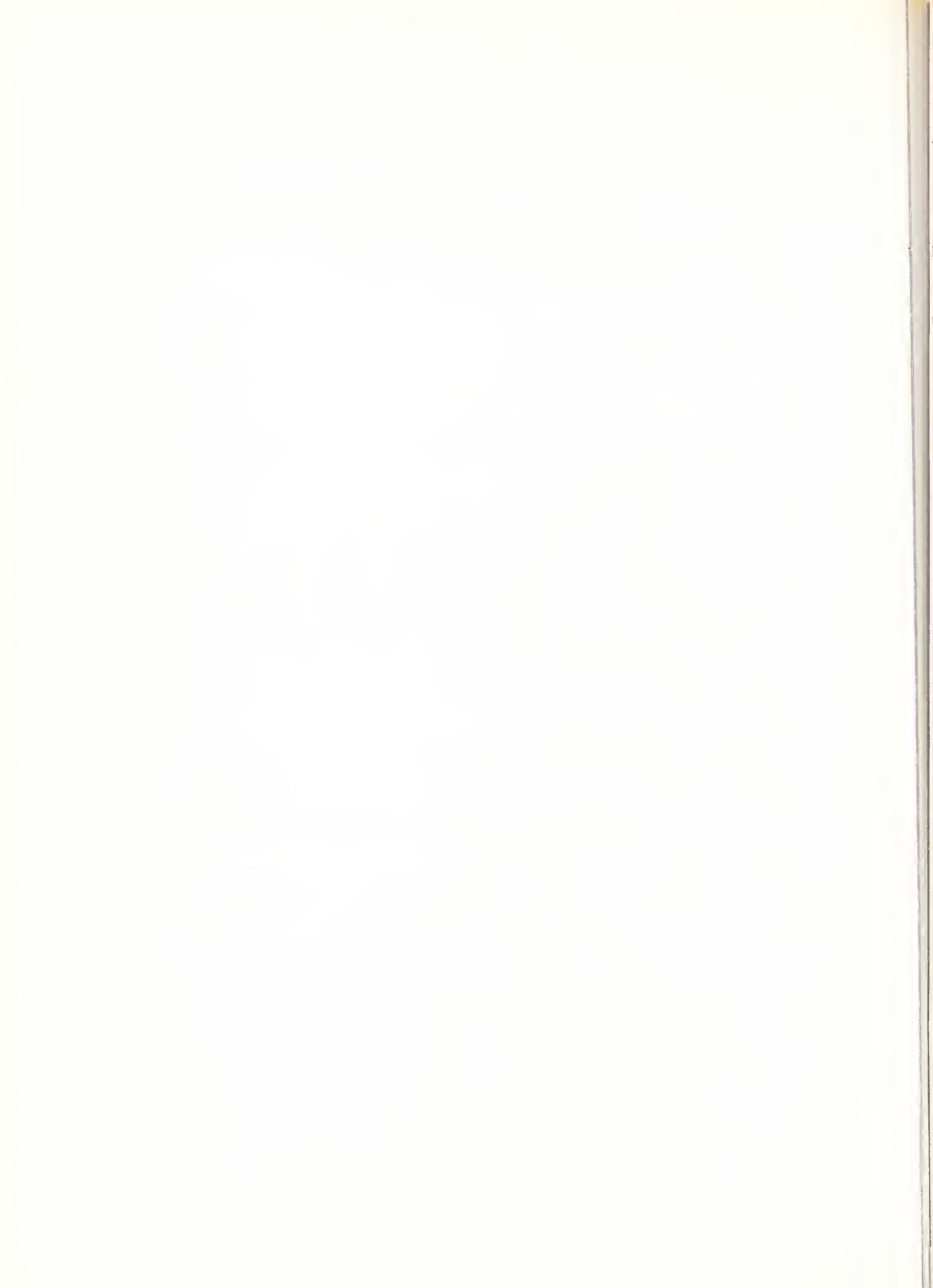
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[A detailed list of CRPL publications is available from the Central Radio Propagation Laboratory upon request]

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Telephoned and telegraphed reports of ionospheric, solar, geomagnetic, and radio propagation data.

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CRPL—Jp. North Pacific Radio Propagation Forecast.

Semimonthly:

CRPL—Ja. Semimonthly Frequency Revision Factors For CRPL Basic Radio Propagation Prediction Reports.

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CRPL—D. Basic Radio Propagation Predictions—Three months in advance. (Dept. of the Army, TB 11—499—, monthly supplements to TM 11—499; Dept. of the Air Force, TO 31—3—28 series).
On sale by Superintendent of Documents. Members of the Armed Forces should address cognizant military office.

CRPL—F. (Part A). Ionospheric Data.

(Part B). Solar-Geophysical Data.

Limited distribution. These publications are in general disseminated only to those individuals or scientific organizations which collaborate in the exchange of ionospheric, solar, geomagnetic, or other radio propagation data.

Catalog of Data:

A catalog of records and data on file at the U. S. IGY World Data Center A for Airglow and Ionosphere, Boulder Laboratories, National Bureau of Standards, which includes a fee schedule to cover the cost of supplying copies, is available upon request.

The publications listed above may be obtained without charge from the Central Radio Propagation Laboratory, National Bureau of Standards, Boulder Laboratories, Boulder, Colorado, unless otherwise indicated. Please note that the F series is not generally available.

Circulars of the National Bureau of Standards pertaining to Radio Sky Wave Transmission:

NBS Circular 462. Ionospheric Radio Propagation. \$1.25.

NBS Circular 465. Instructions for the Use of Basic Radio Propagation Predictions. 30 cents.

NBS Circular 557. Worldwide Radio Noise Levels Expected in the Frequency Band 10 Kilocycles to 100 megacycles. 30 cents.

NBS Circular 582. Worldwide Occurrence of Sporadic E. \$3.25.

These Circulars are on sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. Members of the Armed Forces should address the respective military office having cognizance of radio wave propagation.

Selected Technical Notes of the National Bureau of Standards:

NBS Tech. Note 2. PB151361. World Maps of F2 Critical Frequencies and Maximum Usable Frequency Factors. \$3.50. PB151361-2. \$3.50.

NBS Tech. Note 13. PB151372. Technical Considerations Leading to an Optimum Allocation of Radio Frequencies in the Band 25 to 60 Mc. \$2.50.

NBS Tech. Note 18. PB151377. Radio Noise Data for the IGY. \$2.50.

18-2. PB151377-2. Quarterly Radio Noise Data (Mar.-May 1959). \$1.00.

18-3. PB151377-3. (June-Aug. 1959). \$1.00.

18-4. PB151377-4, etc. (Sept.-Nov. 1959). \$1.50.

NBS Tech. Note 31. PB151390. An Atlas of Oblique-Incidence Ionograms. \$2.25.

NBS Tech. Note 40-1. PB151399-1. Mean Electron Density Variations of the Quiet Ionosphere, 1: March 1959. \$1.25.

40-2. PB151399-2, etc. 2: April 1959. \$1.25.

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12081 ionospheric measurements
CRPL-F-A 2006
Nov 06, 2017